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THE PROTEIN POISON AND ITS RELATION TO DISEASE *

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In 1903, Vaughan and Wheeler found that the cellular substance of the colon bacillus contains a highly active poison. This was obtained by extracting the dried, dead cells with a 2 per cent. solution of sodium hydroxid in absolute alcohol at 78 C. (172.4 F.). This poison was partially purified by repeated precipitation from alcoholic solution with either mercuric or cupric chlorid and removal of the base with hydrogen sulphid. This poison kills guinea-pigs when injected intravenously in doses of 0.5 mg. When given intra-abdominally this dose must be multiplied by 16 and when given subcutaneously by 32 in order to cause death.

Subsequently the same, or a closely related, poison was obtained from other pathogenic and from non-pathogenic bacteria, and then from vegetable and animal proteins. This work has been repeated and confirmed by others in this country and abroad. It is now known as "the protein poison" and is believed to be a constituent of every true protein whatever be its source. The purest proteins known, such as edestin from hemp-seed and zein from corn-meal yield this poison. It is not found in certain albuminoid substances, such as gelatin. It is found in Witte's and De Chapateau's peptones, but not in that of Defresne. Whether or not the latter is prepared from gelatin is not known.

The symptoms induced by this poison are quite characteristic and can be divided into three well-defined stages. The first is that of peripheral irritation and is marked in the guinea-pig by attempts to scratch every part of the body. In man it is shown by an urticarial rash which spreads from the point of injection and may extend to every part of the skin and invade the visible mucous surfaces. The second stage is one of partial paralysis with rapid and shallow breathing. The third stage is known as the convulsive, and begins in isolated clonic movements which become more frequent and general, finally involving all the muscles of the body and terminating, as a rule, in death. With fatal or nearly fatal doses there is a fall in temperature, which with fatal doses is progressive, and the temperature may fall in guinea-pigs to 85 F. before death. When recovery occurs, the first symptom of this is a return of the temperature toward the normal. In both man and experimental animals, recovery from a single non-fatal dose is speedy, and a complete return to the normal condition may result within a few hours.

Small doses of this poison administered subcutaneously cause fever, and a like effect can be induced with unbroken proteins. By changing the size of the dose and the intervals of administration it is possible to induce any and every known type of fever in experimental animals. One can induce an acute fever, terminating fatally, in a few hours. In this type the temperature can be carried to 107 F., which seems to be near the thermal death-point in these animals. Intermittent and remittent fevers are easily established and varied at the will of the experimenter. A prolonged fever extending through weeks and with a chart not distinguishable from one of typhoid may be established and carried to a fatal issue in rabbits. In fever of this kind there is the usual morning recession and the afternoon exacerbation so characteristic of typhoid. Furthermore, there is increased nitrogen elimination, and progressive emaciation is observed.

When proteins are taken into the alimentary canal and are acted on by the digestive juices the product becomes poisonous at about the peptone stage, and if the peptone formed in alimentary digestion should be absorbed into the circulation it would be highly injurious; but the digestive process proceeds and the peptone is broken up into harmless amino-acids, which are absorbed and synthesized into the proteins of our bodies.

When proteins find their way into the blood without being brought under the action of the digestive juices of the alimentary canal they must be digested in the blood and tissues, and in this process the protein poison is set free and, since general distribution cannot be hindered, it exerts its deleterious effects on the body.

We now know that the symptoms of many diseases are due to the parenteral digestion of proteins. Whenever a foreign protein, be it particulate or in solution, alive or dead, gets into the blood and tissue it must be disposed of by parenteral digestion. There seems to be no great differences in the amount of poison contained in the molecules of ordinary proteins, whether they be vegetable or animal, and, as has been said, the action of the poison is the same whatever the protein from which it has come. Dead protein contains just as much poison as living protein, but if the latter can grow and multiply in the body it increases the amount of its poison. Quite naturally most of the foreign proteins that find their way into the blood are living, such as bacteria and protozoa. Researches into the poisonous action of ordinary proteins, however, under the influence of the condition of sensitization, have demonstrated that living proteins are not absolutely essential to the development of certain diseases. If in any way proteins find access to the blood and tissues and the body becomes sensitized, then disease and death may result without bacteria or protozoa playing any part in the process. It has been shown quite conclusively that hay-fever and kindred

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disorders are due to sensitization to the pollen of diverse plants. Horse-asthma comes from the inhalation of hairs, and possibly of other proteins, from the horse carried through the air in other forms. The inhalation of peptone or other finely divided proteins may cause acute and subacute inflammation of the upper air-passages. Sensitization may result from the absorption of undigested or partly digested proteins from the alimentary tract. Whether or not the summer diarrheas of infancy ever originate in this way is a question to which a positive answer cannot yet be given. There are some good reasons for suspecting that the lowered vitality of the infant by excessive heat may lead to absorption of undigested proteins, and in this way cholera infantum and kindred diseases may be induced. We have not enough information on this matter at present, however, to enable us to speak positively, and I shall confine myself to a brief statement of the part played by the protein poison in the bacterial diseases. Recent studies in protein sensitization have quite materially modified our views concerning the nature and progress of the infectious diseases.

Bacteria have generally been regarded as unicellular plant organisms. This view is without just warrant. There is no proof that the bacterial cell contains cellulose. Indeed, all the evidence that we have concerning the chemistry of the bacterial cell is quite to the contrary. The bacteria which have been most thoroughly studied consist largely, if not wholly, of nucleoproteins or glyconucleoproteins, and are therefore more closely related to animal than to vegetable forms of life.

It has been assumed, furthermore, that the chemical structure of the bacterial cell is relatively simple. This has been shown not to be true. The molecules which make up the greater part of the proteins of the bacterial cell are quite as complicated as those that are found in the cells of our own bodies. These molecules contain at least two carbohydrates, one of which is attached to the nuclein group, while the position of the other has not been determined; but the weight of evidence is that it is a constituent of the protein part. Bacterial cell-substance yields the nuclein bases, and the greater part of it consists of protein, as is shown by its abundant yield of amino-acids, both mono and diamino. It will be seen from this that, although bacteria may be morphologically simple and without marked differentiation in structure, they are chemically quite complex and highly organized. This means that functionally they are quite on a par with the cells of the animal body with which the pathogenic bacteria so often compete.

The newer theory of how bacteria cause disease may be stated as follows: The cell is the morphologic unit of life, though not the physiologic unit. The latter is the protein molecule which lies in the cell and of which the cell is essentially composed. Bacteria are particulate proteins, and viruses capable of causing disease may be without form recognizable by us. The only essential and constant distinction between living and dead matter is that the former is never in a state of equilibrium; it is constantly absorbing and excreting; it feeds and eliminates; it is constantly trading in energy; it is labile, not stable. Every living cell must form ferments by which it splits up the pabulum on which it feeds. Whether a given bacterium is pathogenic to a given animal or not depends on two things. First, in order to be pathogenic it must be able to split up and feed on the proteins of the animal body; otherwise it cannot grow and multiply in that animal's body and consequently cannot harm it. Secondly, the ferments of the cells of the animal's body must not be immediately, at least, destructive to the invading bacterium. When the ferments of the body-cells have this destructive action on the bacterium, the latter cannot be harmful to the former. These two things determine the pathogenicity or non-pathogenicity of a bacterium, and one or the other or both lie at the base of all bacterial susceptibility and immunity. The pathogenicity of a bacterium is not determined by its capability of forming a poison, because there is no protein without poisonous content. The ferments with which cells, be they bacterial or body cells, split up their pabulum or prepare their food are known as extracellular ferments. They diffuse from the cell into the surrounding medium, and exert a cleavage action on those food substances which they are capable of thus altering. Some are highly diffusible and may pass through a relatively large amount of pabulum, while others apparently act only on those substances that come into contact with the cell.

Of all the bacteria with which we have worked the *Bacillus prodigiosus* yields the largest amount of the protein poison, but this organism is not pathogenic to man or laboratory animals because it cannot grow and multiply in the animal body. On the other hand, the anthrax bacillus yields a relatively small amount of the protein poison, and yet it is one of the most infectious organisms because it can grow and multiply in the animal body.

The extracellular ferments are not the only ferments with which living cells are supplied. Many, probably all, living cells have intracellular ferments, which are non-diffusible and remain within the cell. The function of these is to take the food as prepared by the extracellular ferments and build it into the cell tissue. It will be seen that the extracellular ferment is destructive or analytic in its processes, while the intracellular ferment is constructive or synthetic.

The important lesson which we have learned from our studies of protein sensitization is that the nature and action of cell ferments may be, to some extent at least, modified at will. Cells can be trained or educated to pour out a special ferment to digest a specific body. This is the explanation of vaccination. The virus of small-pox is pathogenic to the unvaccinated, but is non-pathogenic to the man who has had the disease or has been vaccinated. The typhoid bacillus is no longer infectious to the man who has been properly vaccinated against this disease. Vaccination is secured by introducing into the body that protein which causes the disease, but in a condition so modified that it will no longer cause the disease, but will lead the body-cells to pour out a ferment which will destroy that specific protein when it is reintroduced. In vaccination for small-pox the protein has been modified by being passed through the cow. A vaccine for anthrax is obtained by growing the bacillus at a high temperature or in the presence of a weak germicide. The dead typhoid bacillus serves as a vaccine. When an individual has been protected by one of these vaccines and is exposed to the disease, the organism is destroyed so soon after admission to the body that it does no harm, and in this way immunity is secured by vaccination. It is easily understood that this form of immunity is not absolute, but is relative, and may be overcome by severe or prolonged exposure.

Vaccines are now used not only as preventive but also as curative agents. Much harm is being done by their indiscriminate and ignorant employment, but their

proper use is rational and scientific. They are of special value in local infections, and they operate by stimulating a wide area of body-cells to furnish a ferment which destroys the bacterium that is the cause of the local condition.

In the light of what has been learned from studies of the protein poison and protein sensitization let us see how the typhoid bacillus acts in inducing the disease. The bacillus finding its way into the body grows and multiplies. Its extracellular ferment acts on the proteins of man's body and prepares the food which is built into typhoid tissue by the intracellular ferments. The ferments of the body-cells are not capable of destroying the invading organism and during the period of incubation it multiplies greatly. During this time the man is not ill. It is not, therefore, the growth and multiplication of the bacillus in the man's body that directly causes the symptoms of typhoid fever, because at the time of its most active growth there is no fever or other symptom. During the period of incubation the bacillus furnishes the ferment, and the proteins of the man's body constitute the substrate. These proteins without much change are taken into the bacterial cells and built into typhoid bacterial tissue. The process is largely one of assimilation and construction, and no poison is liberated; consequently there is no fever or other symptom. After about ten days the period of incubation ceases and the disease is ushered in. The body-cells, under the influence of the foreign protein and for the purpose of its destruction, begin to pour out a new specific ferment. During the disease the body-cells furnish the ferment, and bacterial cells constitute the substrate, the process is destructive, the protein poison is liberated and fever with its concomitants result. The person may die as a result of the too rapid liberation of the poison, from a lesion due to the effects of the products of the parenteral digestion or from chronic poisoning.

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ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: It is refreshing to pediatrists to find that many American pediatrists and physicians have rather held to the original view that, after all, it is the protein that causes the death of the babies in summer diarrheas. Holt of New York has held the same view. There are certain forms of diarrhea in children that are not bacterial. I think that this is now generally recognized. The method by which this poison is produced, how it enters the blood and what circumstances produce it, is yet to be worked out. These diarrheas occur early in the summer. The condition is ordinarily called fermentative diarrhea. It is attributed to carbohydrate fermentation. While we have acute attacks of indigestion in the winter, due to acute indigestion of sugar, in the summer we have diarrheas which we cannot cure by giving the various treatments. The diarrhea is persistent, sometimes for weeks; that type of disease, the toxin of which is unknown, is probably not a direct infection, but undoubtedly depends on some poison, as suggested by Dr. Vaughan.

DR. MARY STRONG, Omaha: I want to speak from the clinical point of view. In Omaha the climate is abominable in summer. Some ten years ago a healthy, live baby was born under my service. I saw that baby when it was about three days old, and for no reason that we could discover it was almost comatose, with a temperature of over 104 F. I did not have laboratory methods convenient for use. I used common sense. I had the baby stripped and sponged with cold water; cold water was injected into its rectum, and we gave it all the cold water that it would swallow; the baby promptly recovered without any change of food. It was having mother's milk, which was good. I know now why that baby recovered. Since then, every summer I have seen babies in Omaha dressed according to the directions of the Eastern doctors, with flannel next to the skin. My first treatment is to take off every scrap of flannel. I think that the nearer naked the baby is in hot weather the better. I saw a baby in my office last summer with a high fever and acute diarrhea, dressed according to Holt. It was not dressed that way when it left my office. It had on one necessary garment and a slip—and I told the mother to take that off when she reached home. The baby recovered. I believe that I know now why it recovered. I found out several years ago that clothes kill a great many babies in the summer time, particularly flannel. It makes them so warm that changes take place in the digestive juices.

DR. C. H. JOHNSON, Grand Rapids, Mich.: Finkelstein has reduced the mortality in his institution from 60 or 80 to 7 per cent. by cutting out sugar and salt in a large degree. He agrees with everything else that Dr. Vaughan says. Finkelstein says that the death-rate in diarrhea has not been reduced by the sterilization of milk. He believes that the disease is due to chemical changes.

DR. C. G. GRULEE, Chicago: It seems to me that there is another side to this proposition—the prime factor, the one thing necessary for such a theory to be realized—that this protein must be absorbed through a deranged gut. What causes the derangement? In answer to Dr. Johnson, I may say that Dr. Finkelstein's ideas have received a serious jolt in the last year. Bendix and Samelson have shown that the injection of sugar solutions made from freshly distilled water does not produce a rise in temperature when injected subcutaneously, while, if the distilled water used is old, a rise in temperature is produced. This, although not yet printed, has also been confirmed in Finkelstein's own clinic by a young Chicago physician, Dr. Grace Meigs, in regard to salts. This does not mean that we cannot produce a rise in temperature from the ingestion of salts or sugar by mouth. In fact, it has been shown definitely that those experiments are correct; that a certain amount of salt or sugar does cause a rise in temperature. The only way in which the seeming conflict of these two propositions can be explained is that the sodium salts or sugar, when given by mouth or rectum, causes a change which allows absorption of some product from the intestine and in that way produces a rise in temperature and symptoms. They have not determined the matter definitely, but have reason to believe that the product in the stale distilled water is not bacteria; but that does not make any difference, nor does it combat this theory of Dr. Vaughan's. It seems to me that, while there are many points that will have to be worked out, we may be on the right track in regard to the causation of summer diarrhea.

There is protein in the intestine other than casein, other than the protein ingested from food, which may be active in the mucus. This has not been accorded the place by pediatrists, which it perhaps deserves, as the source of putrefaction. This may cause a great deal of trouble. As we go further with Dr. Vaughan's idea, we may find that it is absorption of the mucus unchanged.

DR. LOUIS BURCKHARDT, Indianapolis: Dr. Vaughan stated that some food is harmless at one temperature and harmful at another. In our city we have a first-class milk-supply. Our milk commission has controlled it. We have taken sample tests in the laboratories, and the last three tests came back with a count of three hundred. In spite of that, the board of health proposes to demand pasteurization of the milk. I am much interested to hear Dr. Vaughan's idea about the advisability of compulsory pasteurization of milk which has been produced under all the precautions.

DR. H. W. CHENEY, Chicago: Dr. Vaughan did not suggest it, but I wish to ask if this protein poison he speaks of is not the same as that present in horse-serum given therapeutically, which causes death in animals in which it is sometimes used. From a clinical point of view we can agree that some of the cases of summer diarrhea are caused by protein poison, but we know that a large proportion must be caused in other ways,

because we can cure these patients feeding skimmed milk, a protein-rich food.

DR. GEORGE S. CATTERMOLE, Boulder, Colo.: In Colorado we have few cases of summer diarrhea. I believe the reason for this is our low mean summer temperature. Our nights are cool. Probably for this reason we are free from the intestinal disorders in infants that are so common in hot climates. So-called "cholera infantum" is almost never seen in Colorado.

DR. T. C. MCCLEAVE, Berkeley, Cal.: I understood Dr. Vaughan to say that all protein poisoning is the same, the symptomatology depending on the localization in the body. In the exanthematous diseases, in which specific manifestations appear so largely in one organ, the skin, how does he explain the occurrence of the different characteristic eruptions under his theory?

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: It is evident that the presence of other constituents besides proteins in the food influences to a great extent the absorption of proteins from the intestines. This absorption is largely a question of osmosis. It is altogether probable that one dilution of sugar favors the passage of the protein into the blood, while another dilution would have the opposite effect.

I am glad that this question concerning scarlet fever was brought out. As I have stated, experimental fever can be induced in animals by the subcutaneous, intravenous and intra-abdominal injection of any kind of protein. These proteins have their predilection places in the body, where they accumulate. This is true of both living and dead proteins. The pneumococcus protein accumulates in the lungs; the typhoid protein in the mesenteric lymph-nodes and in the spleen, and the proteins which are concerned in the exanthematous diseases accumulate in the skin and submucous tissues. We have shown positively by experiments in the laboratory that white of egg injected into the circulation of a rabbit soon disappears from the blood. Later it may be found in various tissues. White of egg injected into a rabbit intravenously accumulates largely in the skin and in the walls of the intestines. It is also found in the kidneys. Not only does the foreign protein disappear from the blood and become diffused through the tissues, but it also carries with it an appreciable amount of the normal proteins of the blood. The symptoms of one disease differ from those of another largely on account of the organ in which the foreign protein is deposited and in which it is disrupted. The most skilful physician cannot distinguish by the symptoms alone between a meningitis caused by the meningococcus and one caused by the pneumococcus or a third caused by the typhoid bacillus. In all acute infectious diseases the poison formed is one and the same thing. It is the protein poison that kills in all these diseases.

The question has been asked concerning the pasteurization of milk. I should prefer to feed a baby on pure rather than on bad milk, on milk with a low bacterial count than on that with high bacterial count, even if the bacteria are not pathogenic. Bacteria, whether they are pathogenic or non-pathogenic, split up the proteins of milk and probably render them absorbable without complete digestion. The exact relation of cholera infantum and the other forms of summer diarrheas to anaphylaxis has not been made out with certainty. I am, however, of the opinion that the absorption of partly digested proteins has much to do with the summer diarrheas of infancy.

ACUTE ACID INTOXICATION IN CHILDREN *

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This paper contains nothing new; but because the subject receives scant discussion in current text-books, and periodical literature contains articles dealing rather with particular aspects of the matter, it may be of some value to make a general survey of our knowledge of that important disorder occurring in children which, for want of a better term for the time being, we may still tentatively designate "acute acid intoxication."

Acid intoxication is an extremely common phenomenon in a variety of pathologic conditions, but in children, usually from 2 to 10 years old, we see very frequently a symptom-complex in which acidosis is a marked and constant characteristic. Attacks are commonly recurrent, and may come on suddenly or be preceded for a day or two by a prodromal period in which are observed listlessness, anorexia and coated tongue, and, quite strikingly, a bluish pallid ring around the mouth and beneath the eyes, with dusky cheeks. Headache may be complained of, and there is usually a coryza and injection of the conjunctivae, with a variable cough. Intense nervousness, even to marked meningismus, may be exhibited in the beginning, though always as the attack progresses, and frequently throughout, the child is apathetic and, in extreme cases, may even develop coma. In any but mild cases, the appearance of the child is indicative of serious illness. The face is pinched and pale, or often cyanotic, the eyes, at first bright, become sunken and dull, the lips are dry and cracked, the teeth covered with sordes, and the tongue dry and brown over the dorsum, with "strawberry" edges. The abdomen is retracted, and general wasting may be extreme. The skin is dry and harsh, often scaling after a severe attack.

The breath is foul, but the sweetish, fruity odor of acetone can always be detected, and frequently permeates the entire room in which the patient lies. There is always fever, the temperature rarely exceeding 102 or 103 F., but occasionally being very high. The pulse is soft, rapid and irregular, and the respirations sighing and irregular, often slow and deep, with marked "air hunger," both clinical and experimental evidence seeming to show that the acid poisons have a direct depressing effect on the vasomotor and respiratory centers.[1] I have seen two cases in which asthmatic manifestations were a prominent feature of the attacks.

There is no desire for food, and vomiting, except in the mildest cases, is always present, and often is extremely intractable. Large amounts of fluid may be vomited, and the rapid dehydration of the tissues occasions a most intense thirst, the child constantly pleading most piteously for water. The bowels may be constipated, or, less frequently, loose, with green or gray foul stools. The urine is scanty, and may contain albumin, casts and blood. In one case under my observation the child passed only a few ounces of dark-green, syrupy urine in twenty-four hours, which solidified on boiling.

Prostration, in severe cases, is always marked, and not infrequently a fatal termination seems imminent; but deaths from this cause are very rare. The duration of the attacks is from one or two to seven or eight days.

Diagnosis, when one is familiar with the condition, is usually not difficult. Acute digestive disorders may be excluded by the absence of a history of dietetic errors, and the persistence of the vomiting and other symptoms; acute appendicitis by the absence of pain, tenderness, and rigidity; disease of the brain or kidneys, or beginning meningitis, at first readily suspected, by the progress of the attack, and the early development of the characteristic urinary findings. That acidosis and vomiting are frequently observed at the onset of an acute infectious disease may sometimes mislead one, and seeing a child for the first time with an attack of the kind we are considering, I am in the habit of mentioning this to the parents, lest pneumonia or one of the exanthems

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1. Ehrman: Berl. klin. Wchnschr., 1913, l, 49.

unexpectedly supervene. A history of similar previous attacks of course aids in determining the nature of the present one.

The etiology and pathology of this condition are still obscure. Because of the infrequency of death from this cause, we have almost no necropsy data. Necrotic changes in the gastric and intestinal mucosa,[2] degeneration of the glandular epithlelium, small hemorrhages and ulcerations, fatty infiltration of the liver,[3] and in one case, hypertrophic pyloric stenosis,[4] are about all that have been observed.

Marfan[5] in 1901 noted the presence of acetone with recurrent vomiting, and Edsall[6] in 1903 directed attention to the occurrence of large amounts of acetone and diacetic and oxybutyric acids in the urine. Since that time discussion of the subject has largely centered about the question of the rôle of these bodies in the production of the symptoms observed, whether they are of etiologic importance or merely morbid products of the underlying pathologic process.

Langmead[7] in 1906 doubted that they were the cause of the vomiting and other symptoms, stating that he never found them in the urine until well after the onset of the attack. Two years later he ascribed the production of the acid poisons to deficient oxidation of fats by the liver consequent on impairment of its functions by toxins derived from the gastro-intestinal tract, or bacterial activity in other parts of the body.[3]

Morse[8] considered the acid bodies a secondary manifestation, but believed that they were, in part at least, responsible for many of the peculiar symptoms.

Ratchford[9] considered the condition one of auto-intoxication, functional hepatic derangement causing an accumulation of purin bodies in the blood.

Ewing[10] regarded the trouble as a disturbance of fat metabolism, due to defective activity of the liver, associated with absorption of poisonous putrefactive products from the intestine.

Chronic appendicitis was assigned an important etiologic significance by Comby.[11]

Ely[12] asserted that the disorder was a neurosis, and Howland and Richards[13] ascribed it to an unstable state of the nervous system and regarded shock or excitement as the cause of a disturbance of metabolism leading to diminished oxidation, with the circulation of the unoxidized substance in the blood. Such substances being excreted into the stomach, the vomiting may be considered as an attempt of the body to rid itself of them. My own experience with these cases indicates the undoubted importance of the nervous element in their etiology. I see very many of them, for example, at such times as Christmas week, and following children's parties, in little patients in whom the question of dietetic errors as a factor may be entirely excluded.

Janeway and Mosenthal[14] thought that carbohydrate starvation might be a causative factor, as a deficiency of carbohydrates in the diet will produce an acetonuria.

Sedgwick,[15] in 1910, called attention to the occurrence of creatin in the urine of a child subject to recurrent vomiting, and later,[16] reported further cases in which creatinuria was observed. Mellanby[17] reported similar findings in the case of a boy aged 6, in whose urine creatin was always present, increasing in amount before the onset, and reaching a high level with the climax of each attack, the condition of the patient as regards acidosis apparently being immaterial, as the acid bodies usually considered at fault were sometimes present in large amount without causing any apparent change in the child's well-being. The attacks were considered as due to intestinal toxemia, with possible infection of the portal area, the acidosis being merely secondary to derangement of the glycogenic function of the liver, which, causing imperfect catabolism of the fats, an accumulation of aceto-acetic and beta-oxybutyric acids in the body results, these substances being intermediate products in the breaking down of the fats, which normally should proceed to the formation of carbon dioxid and water. The presence of creatin is explained by the fact, as shown by Cathcart,[18] that a deficiency of carbohydrates, or inability to utilize such as are present in the body, will cause this substance to appear in the urine in large amounts. The hypothesis was advanced by him that carbohydrates are essential for protein metabolism, as they are for fat metabolism.

Finally, acidosis is common in children exhibiting catarrhal conditions of the nasopharynx, adenoids and diseased tonsils, and as before noted, acute coryza is a marked premonitory symptom of the attacks. Griffiths,[2] Comby,[11] Eustace Smith,[19] Sedgwick[20] and others have emphasized this relationship, and have noted marked improvement in these cases after removal of adenoids and tonsils, or other treatment of the nose and throat. I am convinced from my own observation that there is no other single factor so important, as a large proportion of the children I see with acidosis have bad throats and the recurrent attacks of acidosis and vomiting are relieved by proper treatment of the throat conditions.

Summing up and correlating all these various views as to the etiology of the condition, I may say that in children who suffer from periodic attacks of acid intoxication or recurrent vomiting, there is probably almost always some chronic focus of infection, adenoids, diseased tonsils, an inflamed bowel or appendix, or what not, the toxins from which, being constantly absorbed, act primarily on the liver. From time to time, by reason of the cumulative effect of the toxins, or to further disturbance of the already impaired equilibrium of metabolism by dietetic indiscretions, or by excitement, fatigue or other nervous element, there results a failure of the liver properly to perform its functions. The processes of carbohydrate metabolism are first disarranged, the frequency and severity of the attacks in childhood, perhaps, being due to the fact that the reserve supply of glycogen in the liver is not so great, proportionately, in children as in adults, and that therefore any interference with the glycogen-storing or glycolytic powers of the liver, there being no longer a proper supply of sugar available, induces an immediate disturbance of fat and protein metabolism, manifested by the appearance in the

2. Griffiths: Am. Jour. Med. Sc., 1900, cxx, 553.
3. Langmead: Brit. Med. Jour., 1907, ii, 819.
4. Russell: Brit. Jour. Child. Dis., 1910, vii, 49.
5. Marfan: Arch. de méd. d. enf., 1901, iv, 641.
6. Edsall: Am. Jour. Med. Sc., 1903, cxxv, 629.
7. Langmead: Brit. Med. Jour., 1905, i, 350.
8. Morse: Arch. Pediat., 1905, xxii, 571.
9. Ratchford: Arch. Pediat., 1904, xxi, 881.
10. Ewing: Cornell Univ. Pub. Dept. Pathol., 1908, viii.
11. Comby: Arch. de méd. d. enf., 1905, vii, 741.
12. Ely, Thomas C.: Cyclic Vomiting in Children, THE JOURNAL A. M. A., March 28, 1903, p. 845.
13. Howland and Richards: Arch. Pediat., 1907, xxiv, 401.
14. Janeway, Theodore C., and Mosenthal, H. O.: An Unusual Paroxysmal Syndrome, Probably Allied to Recurrent Vomiting with a Study of the Nitrogen Metabolism, Arch. Int. Med., October, 1908, p. 214.
15. Sedgwick, J. P.: Creatinin and Creatin Metabolism in Children, THE JOURNAL A. M. A., Oct. 1, 1910, p. 1178.
16. Sedgwick, J. P.: Studies of Recurrent or Periodical Vomiting, Am. Jour. Dis. Child., April, 1912, p. 209.
17. Mellanby: Lancet, London, 1911, ii, 8.
18. Cathcart: Jour. Physiol., 1909, xxxix, 311.
19. Smith, Eustace: Lancet, London, 1911, ii, 1186.
20. Sedgwick, J. P.: Studies of Recurrent or Periodical Vomiting, Am. Jour. Dis. Child., April, 1912, p. 212.

urine of the toxic bodies before described. How these operate to produce the prostration, vomiting, rapid wasting, vasomotor changes, nervous disturbances and other characteristic symptoms cannot yet be explained.

The consideration of treatment is largely omitted from the literature, or often discussed with a note of pessimism which is entirely unjustified to-day, as the little patients who suffer from this disorder offer excellent opportunity for successful therapy. Of fundamental importance, of course, is the determination and proper treatment of such foci of infection as have been referred to. Adenoids and bad tonsils will, I believe, be most commonly found, and their removal is usually followed by complete cessation of the acidosis attacks. Similar relief has frequently resulted from appendectomy in properly selected cases. Next in importance may be placed a properly balanced dietary, low in fats, with ample amounts of carbohydrate in the form of suitable breadstuffs, crackers, dry cereal preparations, rice, etc., with simple sweets and milk and lean meats in moderation, with plenty of green vegetables and fresh fruits. Citrus fruit juices are of especial advantage because of their content of potassium citrate which is converted in the body to potassium carbonate, and so tends to maintain the alkalinity of the tissues. Grape-juices, being rich in alkaline salts, are also valuable.

Constipation may be overcome by dietetic measures or by mild saline aperients if necessary, and the child's general hygiene should be carefully conserved by a quiet outdoor life with avoidance of too great fatigue and excitement. Drugging is not to be recommended except that in children with frequent recurrence of attacks, a periodic thorough emptying of the large bowel with a saline laxative or castor oil, with the administration of a dram or two of sodium bicarbonate one day per week may be beneficial. The routine daily use of an alkali is, of course, inadvisable because of its deleterious effect on gastric digestion.

Impending attacks, if recognized, may often be aborted by prompt catharsis and the free use of sodium bicarbonate as recommended by Edsall,[6] and favorably reported on by Pierson[21] and many others. Routine examinations of the urine will often give warning of the approach of an attack even before the onset of prodromal symptoms. In the treatment of an established attack, the bicarbonate is valuable not because of any neutralizing effect on the acid bodies, but because it stimulates their excretion, and probably exerts a protective influence on the body fats. It may be given by stomach, if vomiting does not prevent, or preferably by rectum, in doses of 60 grains in 3 or 4 ounces of water every three or four hours, or more or less continuously by the drip method; and in extreme cases, by intravenous injection. To meet the need for carbohydrate, sugar must be given in that form in which it is most available for utilization, namely, dextrose. It, too, may be administered by mouth, by rectum, in 4 per cent. solution with alkali, or by hypodermoclysis if the symptoms are urgent. So-called "corn-syrup," sometimes recommended for this purpose, is commercial glucose, derived from starch by the action of hydrochloric acid under pressure of steam, and as it contains only about 30 per cent. of dextrose and over 50 per cent. of dextrin, it should not be used if true glucose can be obtained.

Extreme drying out of the tissues may be counteracted by saline infusions, prostration by appropriate stimulants, and nervous symptoms by opium, chloral or bromids, or by ice-packs or moist packs. As the vomiting subsides, gruels may first be given with orangeade or other fruit-juice drinks, gradually increasing the diet to normal.

Convalescence is frequently surprisingly rapid, and the little patient, except for the wasting, will soon show no signs of what, a few days previously, appeared to be so serious an illness.

Berkeley National Bank Building.

21. Pierson: Arch. Pediat., 1913, xx. 505.

ABSTRACT OF DISCUSSION

DR. JOHN ZAHORSKY, St. Louis: Dr. McCleave describes the color of the cheeks as being dusky. One of the most important symptoms of acid intoxication is a deep flushing of the cheeks, but I would not call it dusky. It is really a scarlet. The diagnosis is almost certain at a glance when the child has this peculiar color and is breathing very rapidly. I recall the case of a child who had these attacks and who, after circumcision, had no attacks for nearly a year. Of course, the mother attributed the improvement to the operation. The operative shock does seem to modify certain phenomena. The removal of the appendix, for instance, no doubt has a beneficial influence on nervous diseases.

I believe that this disease is related to migraine. I recall a family in which the mother has severe migraine attacks. One child has asthma, another has eczema and another has cyclic vomiting, showing a nervous disturbance throughout the whole family. I have noticed marked enlargement of the liver in two severe cases. The liver should be palpated in all cases. It has been definitely established that enlargement of the liver does occur in these severe cases. One patient was very sick. We thought the child would die. I marked out the liver on the abdomen daily and found it extending several inches below the margin of the ribs. On a subsequent visit I detected that it had receded half an inch. I then gave a favorable prognosis, although the other symptoms were still as severe as before. I would give enlargement of the liver as an additional symptom to be watched for in severe cases of this disease.

DR. J. R. SNYDER, Birmingham, Ala.: Dr. McCleave has not mentioned a certain type of case common in the South. It occurs in children younger than those indicated by the age limits he gave; most commonly in infants between 8 and 18 months of age. It is characterized by an acute onset, vomiting, increasing dyspnea and enlargement of the liver. In the article read by Dr. Thomas D. Parke in this Section several years ago, the symptom-complex of the disease was said to consist of a low-grade temperature, as a rule, intense thirst, vomiting, increasing dyspnea, constipation, dark green or tarry stools, enlargement of the liver, such urinary findings as occur in any acidosis, and so on. We see a large number of these cases in the South. We have come to regard them as among the most serious with which we have to deal. The mortality is over 80 per cent.

DR. C. H. JOHNSON, Grand Rapids, Mich.: This is a comparatively new disease. About eight years ago I had a severe case. The boy had been ill ten days with recurrent vomiting and was nearly dead when I first saw him. These children have attacks of indigestion and vomiting, and we are apt to think of a gastro-intestinal trouble. We simply do not recognize the condition. My own son had recurrent vomiting for four or five years before I made a correct diagnosis. These attacks were never ameliorated in the least until I had thoroughly removed the stumps of tonsils that had been taken out several years before that. With complete removal of the tonsils he recovered. The case I referred to before was the worst I ever saw. The attack always began with stuffiness in the nose and a slight sore throat, and what I concluded was inflammation of very small adenoids. That boy did not make any improvement until the nose and pharyngeal space were put in good condition.

DR. THOMAS B. COOLEY, Detroit: I am glad that Dr. Snyder spoke of the severe cases in babies. I think that they deserve to be distinguished from the type of acidosis which we find

in so-called recurrent vomiting. I have seen a number of these cases in babies anywhere from 7 to 18 months or 2 years of age. The acidosis seems to be an accompaniment of an acute infection—often of the influenza type. Prostration is great from the start. The children do not always have a low temperature—I have seen it 103 F. and over—and they have great air hunger, severe prostration, not much vomiting, perhaps, and not so severe or so difficult to check as in cases of recurrent vomiting in which there is a strong nervous element.

DR. I. A. ABT, Chicago: It seems to me that the altered constitutional state due to abnormal acid in the urine must be somewhat more carefully differentiated than has been the custom in the past. Acetone, diacetic acid, butyric acid, creatin and creatinin may all be recovered from the urine of children ill with various conditions. Acetone and diacetic acid occur in normal children. Undoubtedly they also occur in various forms of infection. The class of cases that I wish to refer to are those considered by Dr. Parke in this Section some years ago and referred to this morning by Dr. Snyder. I have seen a number of these cases. I am sure that the condition is not so infrequent as would be supposed from the scant reference in the literature. There is a group of babies, from 8 to 18 months of age, particularly at the weaning period, who fall ill with gastro-intestinal symptoms consisting of vomiting, slight diarrhea and rapid pulse, with a low temperature. The first striking symptom is the rapid breathing. Some pallor is noticed and, by and by, great prostration; soon constipation occurs, followed nearly always by more or less complete loss of intestinal tone, with symptoms which may simulate an obstruction. The baby passes neither gas nor stool. I am sure that this is a definite type of case. I have seen a number of them, some even during the time when breast-feeding was the exclusive diet and some during the transitional period from breast-feeding to that of artificial feeding. The urine contains acetone, diacetic acid and sometimes leucin and tyrosin with a trace of albumin. A brief reference to some case histories may throw light on the course and etiology of the disease.

A healthy baby was born to parents in perfect health and remained well until about the ninth month, when it was weaned. In a few days he developed the symptoms of gastro-intestinal disturbance mentioned previously and died in a few days. Some time later another baby was born. He also was healthy and strong and had never been sick up to the ninth or tenth month. He developed the same symptoms and died. The urine contained acetone, diacetic acid, oxybutyric acid, creatin and creatinin.

Another baby was born. The same symptoms developed. We examined the mother's milk and urine carefully. The breast-milk showed nothing, but the urine contained a small amount of sugar. One night the baby seemed about to die. We gave large doses of carbonate of soda, took away fat and gave skimmed milk, soy-bean flour, gelatin by mouth and glucose solution per rectum. We felt that starvation was possibly an important etiologic factor in producing these acid conditions. Eight per cent. glucose solution with normal salt solution we believed might be absorbed without being oxidized in the liver, and possibly counteract the intoxication. A 2 per cent. solution of sodium carbonate was given under the skin. The baby was better the next day and recovered in a few days. The carbonate of soda solution produced an immense slough, as large as the palms of two hands.

What caused this intoxication? We have concluded from experiment that it was not the breast-milk. The mother's urine cleared up in a few days and the sugar disappeared. We thought the fact that two other children had been similarly ill pointed, first, to a family type of disorder, and secondly, to something wrong in the metabolic functions of this baby; that some defect of the organism rendered it impossible for him to take care of some particular foodstuff. Was it a fat intoxication? It did not present the symptoms or reactions usually observed in fat intoxication of infants. Nor did the condition correspond to any known clinical type of sugar intoxication. Possibly this severe and unusual form of acid intoxication is due to some albumin, the nature of which we are unable to determine at present.

DR. J. L. MORSE, Boston: I have written and talked a good deal about acid intoxication. I thoroughly believe that there is such a condition in children, because I have had cases in which parents recognized the odor of acetone bodies in the breath and urine and in which they have been found present in large quantities before the onset of symptoms. I believe that it is the cause of some cases of recurrent vomiting. Someone said that the condition was not being recognized as often as it should be. My experience in the last year or two has been, not that it is not recognized, but that a great many other things are being called acid intoxication that have no relation to it, the reason being that someone has found a little acetone or diacetic acid in the urine. Anyone who has examined a large number of urines will be surprised to find how often these substances are found in the urine and how infrequently there are any symptoms from them. There are symptoms only when it is present in a considerable amount. One must be extremely careful in making diagnoses of said intoxication in children with vomiting and other symptoms simply because a small amount of these substances are present in the urine.

DR. H. T. PRICE, Pittsburgh, Pa.: One fact that has impressed me is the tendency to consider this condition as being of nervous origin. So serious a condition is hardly of nervous origin, because we know from experience that if we permit a child to live properly we can prevent many of these attacks. Ordinarily we believe that acidosis is a serious condition, but that most patients recover. I am glad to learn that others have given a grave prognosis, because some patients have died under my care, and I have felt that I was at fault for not getting the results that we are led to believe should be obtained.

DR. L. R DEBUYS, New Orleans: I concur in the remarks of Dr. Abt, and I also feel that Dr. Morse has sounded a strong note. There is the other side to be considered, however. The tendency is for physicians to ridicule acid intoxication, and the sooner they appreciate the gravity of the condition the sooner more lives will be saved.

Dr. Zahorsky has made the same observation that I have regarding the peculiar flushing of the face. The flushing, at times resembling that of scarlet fever, is suggestive. As these patients improve, I have noticed the peculiar flushing disappear.

Another symptom of value in the diagnosis is that the temperature is usually low. The condition may start with some digestive disturbance and a somewhat high temperature. After the bowel has been cleaned out the temperature will decline. In fatal cases there is usually a gradual rise of temperature, signifying, I believe, that the means of eliminating poisons are locked up. These patients die, as a rule, with hyperpyrexia.

DR. H. LOWENBURG, Philadelphia: The point Dr. Morse brought out is important and calls to mind the history of two cases that came under my experience. One illustrates that not all cases of recurrent vomiting in children are due to acidosis. The child was 4 years of age. A diagnosis of acidosis had been made. On careful investigation of the urine no evidence of acidosis was discovered. Roentgenoscopy indicated the presence of a marked degree of pyloric spasm. An interesting feature was that the child recovered after half a dozen stomach washings and has had no recurrence for about five months.

The other was the case of an infant sent to me for recurrent vomiting with the diagnosis of pyloric obstruction. Here, too, a roentgenogram was made, and it showed kinking of the bowel in the region of the sigmoid. The infant was much constipated. The kink was the only thing that could be discovered. The pylorus was clear. The vomiting was probably reflex or toxic. This infant, too, recovered with use of high enemas of olive-oil.

Dr. Abt referred to a slough that followed the subcutaneous injection of bicarbonate of soda solution. I have given bicar-

bonate of soda by hypodermoclysis in about seven cases, and in each there was a slough.

DR. THOMAS C. MCCLEAVE, Berkeley, Cal.: With reference to the comment of Dr. Zahorsky and Dr. DeBuys in regard to the flushing of the face, I used the term dusky as best describing the appearance at the height of the attack. It is characteristic in the beginning that these children have a bluish, pallid ring under the eyes, sometimes a very intense white ring around the mouth and flushed cheeks. As the attack progresses and the intoxication becomes more intense, air hunger and cyanosis develop, diacetic and oxybutyric acids having a direct depressing effect on the respiratory and vasomotor centers.

I think that adenoids and diseased appendixes are of importance as sources of toxemia. We know that the liver is one of the most susceptible organs in the body to toxins of any nature. A disturbance of liver function results, and, unquestionably in my experience, removal of adenoids and bad tonsils or appendixes has worked a marvelous change sometimes in a child subject to attacks of this nature.

I purposely omitted from consideration the attacks in younger children referred to by other speakers as having been first described by Dr. Parke, as I am not at all sure that they belong in the category of the cases I had in mind.

Great care is necessary in the use of either sodium carbonate or bicarbonate under the skin or intravenously, as ordinary preparations of these drugs are contaminated; it is exceedingly important to have a chemically pure drug, or sloughs will occur. Dr. Fischer maintains that sodium carbonate is more valuable for the relief of acid conditions than the bicarbonate, for the reason that the sodium in the latter has already tied up to it as much acid as it will carry, and sodium carbonate has therefore a better combining value.

DR. H. LOWENBURG, Philadelphia: The last case of sloughing I had followed the use of Fischer's solution.

LEGAL ASPECT OF THE FEDERAL PROTECTION OF THE PUBLIC HEALTH *

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The public health policy of the United States has been one of gradual growth and change. In the first stage the general government assumed no authority whatsoever, other than to assist on occasions of emergency in the execution of the health laws of the state. In 1794, the Third Congress authorized the President to alter the place for holding the session of Congress if in his judgment there existed a prevalence of contagious sickness which would be hazardous to the lives or health of the members of Congress, and in 1796, he was authorized to direct the revenue officers and others to aid in the execution of quarantine and state health laws. This law was repealed in 1799. It was later reenacted. The act of Feb. 25, 1799, may be considered as the first public health law of the United States, and was the beginning of the public health work of the Treasury Department, the Secretary of the Treasury being empowered to make regulations governing the cooperation between the revenue officers and the government and the state health authorities. In 1798, the United States Marine-Hospital Service was created for the purpose of affording physical and surgical relief of the sick and injured men of the merchant marine and the navy. This act was amended by the acts of March 2, 1799, May 5, 1802, and Feb. 26, 1811. The authority of the Treasury Department to aid in the execution of the quarantine and health laws of any state was reaffirmed in 1832, and additional measures in aid of quarantine were enacted in 1866.

In the same year the first session of the Thirty-Ninth Congress, by joint resolution, authorized the Secretary of the Treasury to make and carry into effect such orders and regulations of quarantine as, in his opinion, may be deemed necessary and proper, in aid of state or municipal authorities to guard against the introduction of cholera into the ports of the United States. He was also authorized to direct revenue officers and officers commanding revenue cutters to aid in the execution of such quarantine and the health laws of the states.

It is highly probable that the passage of this law was brought about by the prevalence of cholera. This disease occurred in epidemic form in the United States during the years 1817, 1819, 1832, 1833, 1848, 1849, 1850, 1855 and 1866, but apparently fifty years were required for the people's representatives to realize that safety from disease meant its exclusion from abroad.

In the second session of the same Congress, by joint resolution approved Feb. 28, 1867, the Secretary of War and the Secretary of the Navy were again authorized to place at the disposal of the quarantine authorities of the states vessels and hulks for quarantine purposes.

The second session of the Forty-First Congress, by an act approved June 29, 1870, reorganized the Marine-Hospital Service, changing it into a compact and coordinate organization, having at its head a single officer charged by law with the supervision of all matters connected with the Marine-Hospital Service and the disbursement of funds provided for its maintenance.

The decade which followed was marked by some of the most wide-spread outbreaks of yellow fever which the United States has ever suffered. The officers of the Marine-Hospital Service, by reason of their familiarity with the disease and the fact that they were the only mobile sanitary force which the government possessed, were frequently thrown out on the firing line of yellow fever. At that time the entire corps did not exceed more than fifteen or twenty officers, yet they were sent into the worse infected localities to fight a disease whose mode of transmission was at that time unknown to the medical profession. The year of 1878 witnessed a frightful outburst of yellow fever which attacked the entire South, and for a time completely paralyzed its external commerce and its internal administration. It is estimated that during this outbreak over thirty thousand people were attacked, of which number at least fifteen thousand perished. This was the second great scourge of yellow fever in the lower Mississippi Valley, the first occurring in 1853 during the months of June, July and August, during which sixteen thousand persons, of whom eight thousand died, were attacked in New Orleans alone. The 1878 outburst, occurring just twenty-five years later, found a large non-immune population, and the disease swept up and down the Southern states like wildfire.

This impressed on Congress the fact that the sanitary policy which was then being pursued was not a wise one and that a change must be made. As a result, a law was enacted to prevent the introduction of contagious or infectious diseases into the United States. This act was approved April 29, 1878, and provided for consular bills of health and for reports by the consular officers to the Supervising Surgeon-General of the sanitary condition of the ports at which they were stationed. The Surgeon-

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

General was charged, under the direction of the Secretary of the Treasury with the execution of the provisions of that law and the promulgation of rules and regulations necessary for the conduct of quarantine. It was expressly provided in this law that such rules and regulations should not conflict with or impair any sanitary or quarantine laws or regulations of any state or municipality. The enforcement of the national quarantine rules and regulations was made a duty of the medical officers of the Marine-Hospital Service, and the policy was adopted that the protection of all the states against disease from foreign countries, or from one another, was the function of the federal government.

The issuance of bulletins of health had been authorized by previous act of Congress, but in the act approved March 3, 1879, an appropriation was made for the publication of these bulletins. This may be said to be the beginning of the policy of the government's issuing from time to time information of a public-health character.

This was in reality the second stage in our sanitary policy, one from which we departed in the following year and one to which we gladly returned a short time later.

The basic idea of this policy is the protection of the individual person, locality, or state by the state and municipal authorities, and the protection of the mass by the general government. It presupposes on the part of the states a pride and an unwillingness to surrender to the general government any function which they can satisfactorily discharge. On the other hand, it expects of the general government that it will protect the states against one another, that it will bear the burden when more than one state is involved, and that it will not allow the states to take harm through commerce. It expects the states to endeavor to solve their own problems, but it demands that the general government shall undertake the study of matters which concern all of the states, or which demand the services of experts for the conduct of expensive experiments.

This is a wise and far-reaching policy and one which in the end will bring about the greatest and most lasting good. Unfortunately, this was not realized at the time it was first adopted and there was created by the act approved March 3, 1879, a national Board of Health to meet the desires of those persons who were not satisfied with this form of sanitary policy. By the provisions of this act there was created a national board of eleven members, seven of whom were to be appointed by the President, the remaining four to be one medical officer each from the Army, the Navy, the Marine-Hospital Service, and one law officer from the Department of Justice. The powers and duties of this board were wide and contemplated the creation of an even larger and more powerful health organization. This power was further increased by the act of June 2, 1879, a measure which in its all-embracing character recalls bills which have been before Congress for the past two or three years.

On June 14 of the same year, by joint resolution of Congress, the Secretary of the Navy was authorized to place vessels or hulks at the disposal of the national Board of Health for quarantine purposes.

As if this were not enough, the first session of the Forty-Sixth Congress, in an act approved July 1, 1879, granted still further powers and an appropriation of $500,000 for the carrying out of this experimental sanitary legislation; office rooms were provided for the national Board of Health, and funds were provided for the publication of its reports and papers. This act also authorized the employment of stenographers and a chief clerk, and granted authority for the board to erect temporary quarantine buildings and to acquire real estate, or to rent houses for that purpose.

By an act approved April 18, 1879, the Secretary of the Treasury was authorized to contract for the purchase or construction of a refrigerator ship for the use of the board in the disinfection of vessels or cargoes, or for other purposes, and for this $200,000 was appropriated.

By joint resolution of April 18, 1879, the first session of the Forty-Sixth Congress ratified the organization of the national Board of Health. This action was necessary because the board had failed to take the oath of office. The joint resolution provided for the organization of the board without the taking of the oath of allegiance.

The following year, by the act of June 16, 1880, $100,000 was appropriated for the use of the national Board of Health, and by the act approved March 3, 1881, an appropriation of $225,000 was made for the use of that board. By the act approved August 7, 1882, $50,000 was appropriated for the use of the national Board of Health, but the law provided that the duties and investigations of that board should thereafter be confined to the diseases of cholera, small-pox, and yellow fever. By the act approved March 3, 1885, $10,000 was appropriated for the compensation and personal expenses of the national Board of Health. By an act approved March 3, 1885, provision was made for the salaries of the secretary and messenger of the board and for the rental of its offices. By an act approved March 3, 1885, $5,000 was provided for salaries and expenses of the national Board of Health for the fiscal year ending June 30, 1886. No further appropriations for the use of the national Board of Health appear in the acts of Congress, and by acts approved March 5, 1888, Aug. 1, 1888, and Oct. 1, 1888, the quarantine function was returned to the Treasury Department. There is little doubt that the persons who fathered this movement were genuinely sincere in their efforts and that they were guided by high ideals. The formation of the national Board of Health, however, was an attempt at the formation of a sanitary empire within a republic, and when the money which had been appropriated for its maintenance gave out the entire fabric fell to the ground of its own weight. On Aug. 1, 1888, there was approved an act which transferred to the Marine-Hospital Service the function and administration of quarantine, but it was not until the approval of the act of Feb. 15, 1893, that the national Board of Health was officially stricken from the roster of the United States. That organization had during the first part of its brief life the unqualified backing of Congress. Numerous acts were passed granting it authority, functions and funds, but it never accomplished what its supporters hoped for it, because the basic principle on which it rested was contrary to the spirit of the general government. This should be of value in the future, because it should never be forgotten that any institution in this country which is to endure and functionate to the good of our country must be in harmony with the spirit of American institutions. The national public health organization of the future must follow the policy of supplementing the states where they are weak, of assisting them in situations which are beyond their power and resources to control, to prevent the spread of disease in interstate and foreign commerce, and to maintain the sanitary integrity of the units entering into the formation of the general government. The national Board of Health functionated from 1879 to 1883, when it was allowed to die of inanition.

By the provisions of the act approved Aug. 7, 1882, a fund was created which has since come to bear a very important relation to our sanitary defenses. It is called the fund "for the prevention of the introduction and spread of contagious diseases." As originally enacted, the President of the United States was authorized in case of actual or threatened epidemic to use a sum not exceeding $100,000 for aid of state and local boards of health or otherwise at his discretion in preventing and suppressing the spread of the epidemic. This law was reenacted by the act of March 3, 1883; and by the act approved July 7, 1884, it was provided that the President might also expend the money in maintaining quarantine at points of danger. The act approved March 3, 1885, reappropriated the unexpended balance and added $300,000 to this fund. The expenditure of this sum, however, was authorized only in the case of threatened or actual epidemic of cholera or yellow fever. In the act approved March 3, 1891, the disease small-pox was added to this list, and in the act approved Aug. 18, 1894, the Chinese plague, or black death, was also added. In the sundry civil appropriation act approved June 28, 1902, typhus fever was included in the list, since which time these five diseases—cholera, typhus fever, yellow fever, small-pox, bubonic plague, Chinese plague, or black death —have been considered as diseases the cost of the measures against which may be chargeable to this fund. The President is authorized to spend this money in aid of state and local boards, or otherwise at his discretion, in the prevention and suppression of these diseases, and also in such emergencies in the execution of any quarantine laws which may be in force. The fund has been added to from time to time by the various congresses.

In the meantime, the United States Marine-Hospital Service had been growing, the number of its personnel was increased, and by the act approved Jan. 4, 1889, the method of appointment into the service and the salaries and commissions of its officers were regulated.

The first session of the Fifty-First Congress, in an act approved March 27, 1890, brought about a new phase in our public health policy. Up to this time, aside from the work of eradicating epidemic outbreaks within the states, the national health authorities had largely concerned themselves with the questions of maritime quarantine, leaving out of consideration the matter of the prevention of the introduction of contagious diseases from one state or territory into another, or from any state or territory into the District of Columbia, or from the District of Columbia into any state or territory.

The act referred to had to do with cholera, yellow fever, small-pox and plague. It provided that when it was made to appear to the satisfaction of the President that these diseases existed in a state or territory or the District of Columbia, and there was danger of their spread into other states, territories or the District of Columbia, he was authorized to cause the Secretary of the Treasury to promulgate such rules and regulations as would control and prevent such spread. He was further empowered to employ such assistants as might be necessary for this purpose. The preparation of these regulations was left to the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury. Penalties were attached to the infraction of such rules and regulations and the law specifically included in its penalty clause common carriers and their servants. This was the beginning of the policy for the control of disease in interstate traffic, and as will be shown has grown until it includes other diseases than the major pestilences, and it is believed that the future will see its extension to the point where common carriers engaged in interstate traffic will be regulated to the end that they will not be permitted to bring disease either to passengers or to persons living along the right of way. Such an extension was brought about in 1893 by an act which will be referred to later.

In the following year the Fifty-First Congress, in its second session, by the act approved March 3, 1891, took cognizance of the danger of the importation of disease into the United States by arriving alien immigrants, and there was added to the functions of the Marine-Hospital Service, which already included the medical and surgical relief to the sailors of the merchant marine and the management of maritime and interstate quarantine, the function of the medical examination of arriving aliens.

The following year, 1892, is important in sanitary history because of the large outbreak of cholera which took place in Hamburg, Germany. Our nation was at that time in great danger of the importation of that dread disease into the United States. This was fully realized by Congress, which, by the act approved Feb. 15, 1893, entitled "An Act Granting Additional Quarantine Powers and Imposing Additional Duties on the Marine-Hospital Service," created further barriers against the importation of diseased persons and things from abroad. This law is of great importance, and includes not only the measures to be taken at ports of departure and arrival, but also in Section 3 provides for the enforcement of quarantines between the states. Its careful study is to be commended to any one interested in the furtherance of the national protection of the public health. It may be noted that the law provides that the Surgeon-General shall cooperate with and aid state and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious and infectious diseases into the United States from foreign countries and into one state or territory or the District of Columbia from another state or territory or the District of Columbia. It is required that these rules and regulations shall operate uniformly and without discrimination against any port or place. The law provides that they may be enforced by the state or local health authorities when they will undertake to do so, but in the event of refusal or failure of such boards to enforce the regulations of the Secretary of the Treasury for the prevention of the spread of disease in interstate traffic, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and that he may employ or appoint persons for this purpose. Further, the Secretary may make additional regulations for the prevention of the spread of disease by common carriers. It is under this section that the interstate quarantine regulations have been issued, and recently they have been amended and expanded with the idea of protecting the health of passengers in interstate traffic. It is hoped that eventually they can be amended so as to include the further regulation of the transportation of the dead, as well as the regulation of the transportation of diseased persons and things. It is hoped that they can be extended to the point where many of the commoner, but none the less serious diseases from a public health point of view, can be included in the proscribed list. The recent amendments apply particularly to the water and ice supplied for use by passengers in interstate traffic on common carriers and abolish all common roller-towels and com-

mon drinking-cups and provide for the regulation of the transportation of lepers. These recent amendments have been well received by the common carriers, and already many of the railroads and steamboats are expending considerable sums in providing safe water and ice for their passengers. When the water and ice regulation shall have been applied in its entirety it will mean that every source of water-supply used by common carriers in this country shall be subject to careful bacteriologic and chemical examination at least once in every six months and certificate of such examination filed with the United States Public Health Service. This is bound to have a most beneficial effect and will raise the standard of water generally used in this country.

Quite recently the Secretary of the Treasury appointed a commission of fifteen of the leading water experts of this country to set a standard of purity for water to be supplied for passengers on common carriers in interstate traffic. When this commission shall have rendered its report and the standard set by them shall have been adopted, it will be incorporated in the interstate quarantine regulations and we shall have the first federal standard for purity of water.

The law of Feb. 15, 1893, which we are considering, gives the Surgeon-General additional authority to collect morbidity and mortality statistics in the United States and foreign countries and for the publication of the data so collected in *Public Health Reports*. It also provides for the voluntary cession by a state of its quarantine establishments to the federal government.

From time to time Congress has made appropriations for the study of special diseases. Thus, in the law approved March 2, 1895, appropriation was made for experimental investigation of the treatment and prevention of small-pox in the laboratory of the Marine-Hospital Service, and in the act approved March 2, 1899, provision and appropriation was made for the appointment of a commission of medical officers of the Marine-Hospital Service to investigate the origin and prevalence of leprosy in the United States.

In the act approved March 12, 1900, the quarantine function of the United States was extended to Porto Rico and placed under the jurisdiction of the Marine-Hospital Service, and on April 3 of the same year the Fifty-Sixth Congress in its first session passed a similar act providing for quarantine for the Territory of Hawaii.

In the act approved March 3, 1901, the second session of the same Congress amended the act of Feb. 15, 1893, providing penalties for trespassing on federal quarantines and for entering ports of the United States without a proper bill of health.

The Fifty-Seventh Congress in its first session enacted a law, which was approved on July 1, 1902, which was designed to increase the efficiency and change the name of the United States Marine-Hospital Service. This provided for a change of name to the Public Health and Marine-Hospital Service of the United States, fixed the salaries of the officers, authorized the President to utilize the service in times of threatened or actual war in such manner as would promote the public interest, provided for an advisory board of the Hygienic Laboratory and established the division of chemistry, zoology and pharmacology in the before-mentiond laboratory. It further provided for the annual conferences to be called by the Surgeon-General between the federal Public Health Service and the state and territorial health services. The Surgeon-General was further authorized to collect morbidity, mortality and vital statistics.

Not content with this most excellent law, Congress on the same day passed an act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia and to regulate interstate traffic in such articles. The application of this act has brought about the licensing of the manufacturers of the various biologic products which are used in the treatment of disease, the establishment of standards of potency for diphtheria and tetanus antitoxin and has acted as a public health measure of far-reaching importance.

In its third session, the Fifty-Eighth Congress by joint resolution provided for the publication of the annual reports and bulletins of the Hygienic Laboratory and of the Yellow Fever Institute of the Public Health and Marine-Hospital Service. This act, which was approved Feb. 24, 1905, has been the means of disseminating much knowledge of a public health nature. The same Congress, March 3, 1905, provided for the investigation of leprosy, with special regard to the care and treatment of leprosy in Hawaii. This has brought about the establishment of a leprosy investigation station, which has added greatly to our knowledge of this disease.

In 1905 an outbreak of yellow fever occurred in several of the Southern states, notably in Louisiana, where, at New Orleans, occurred the first application of the then newly acquired knowledge of the transmission of yellow fever by the mosquito. It is true that in the epidemic at Laredo, Tex., in the preceding year, the mosquito theory had been tried on a small scale, but the work at New Orleans was its first employment in what may be called grand tactics. The success which crowned the efforts of the Public Health and Marine-Hospital Service in the New Orleans epidemic inspired the Fifty-Ninth Congress, in its first session, to pass an act to further protect the public health and to make more effective the national quarantine. This act was approved June 19, 1906, and resulted in the cession of the United States of practically all of the southern quarantines.

During all this time the various branches of the Public Health and Marine-Hospital Service had been busy in their respective fields, and in the sundry civil act approved March 4, 1911, Congress added to the utility of the marine hospitals by making of them true public health hospitals. The act referred to contained the following phrase: "Provided, That there may be admitted into the said hospitals, for study, persons with infectious or other diseases affecting the public health, and not to exceed ten cases in any one hospital at one time." Thus, the marine hospitals have now become centers for the clinical study and investigation of diseases which affect the public health.

Finally, on Aug. 13, 1912, the Sixty-Second Congress passed the act referred to in the opening paragraph of this paper. This was approved on the following day. It changed the name of the service to the Public Health Service and it provided that in addition to the duties required by law the Public Health Service may study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution, either directly or indirectly, of the navigable streams and lakes of the United States; and it may from time to time issue information in the form of publications for the use of the public.

This brief review of the legal aspect of the federal protection of the public health does not pretend to be complete. The many acts which Congress has made bearing on individual problems, such as the support of vaccination, the investigation of yellow fever, and certain

quasi-public health measures have not been mentioned, as it is thought that they would attract interest from the main thread of the discourse. I feel that whoever would undertake the legal reformation of the public health might find the desire to have at hand in compact form a few items, important references and the like, which should be carefully considered before undertaking the drafting of any such legislation. It is hoped that a study of these laws will make evident the fact that Congress has made new laws as rapidly as it saw the necessity for so doing, and it is evident from its action in the past that it will act with equal intelligence in the future. The misstatement has frequently been made that the federal government has enacted more legislation for the protection of domestic animals than for the protection of man. It is believed that a careful study of the comprehensive laws already written on the statute-books will incontrovertibly contradict this statement. Congress has gone about building up the public health defenses of the nation on a strong, broad basis, and any legislation which is to be enacted in the future must take full cognizance of this fact. The foundation is well laid; it remains for the people of this country to determine what sort of superstructure shall be erected thereon. If this is done carefully and with judgment, and with the ever-present idea of utilizing the vast body of laws already existent, instead of constructing a de novo edifice, we shall have an efficient and time-enduring structure. The mistakes of the past should guide us in the future, and whatever we may do, let us see to it that what we build is of practical usefulness and in conformity with the plan of our government and the spirit of our American institutions.

ABSTRACT OF DISCUSSION

DR. PAULINE M. TOWNSEND-HANSON, Marshalltown, Iowa: I have no criticism to make of anything the government has done in the past. I want to make a suggestion or two with reference to the future. I notice that research work in regard to the conditions of man—as relating to health—is in the province of this department. Uncertainty of employment has an absolutely direct connection with health. The man out of work, or the man whose employment is inadequate during the year—or whose return for his labor is inadequate—cannot provide healthy conditions for his family. It lies within the scope of this department to delve into the question of uncertainty of employment and income to families.

DR. JAMES A. HAYNE, Columbia, S. C.: I am sorry that the two great political parties in the United States seem to have overlooked the wonderful work that has been done by the United States Public Health Service and failed to embody in their platform a department of public health. We believe that the Democratic administration will carry out its platform and we believe that there will be a department of public health established in Washington, with a cabinet officer at its head. How this is going to be done—and whether the U. S. Public Health Service is to be incorporated in this department—we do not know; but we believe that such a health department must come if effective prevention of disease is to be accomplished.

DR. W. C. RUCKER, Washington, D. C.: I would remind the doctor that there is already a bureau of public health established by act of Congress on August 13, 1912. You mean a department, do you not?

DR. JAMES A. HAYNE, Columbia, S. C.: Yes, a department, with a cabinet officer.

DR. W. C. RUCKER, Washington, D. C.: The question of the expansion of the breadth of public health activity has been brought up by one of the speakers. The matter of wages and of non-employment has already been investigated to quite an extent by the federal government. It has been taken up as an economic measure. It is certainly true that the question of employment as well as of housing, and questions of every thing which has to do with environment, have to do with the public health. The data are available for public health workers.

There is one thing to be thought about in connection with the expansion of any function or any work; it is better not to expand too much; you may find your butter spread out pretty thin, or you may be able to find none of it on your bread when you come to eat it. It is a wise thing, too, in thinking about these things, to go over the laws and to see that Congress has built with a breadth which none of us could have imagined; and it has placed its large foundation on the only proper basis and clear down to bedrock—the Constitution of the United States.

THE NEED OF WHOLE-TIME HEALTH OFFICERS *

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Health is the indispensable asset of life and cannot be acquired without effort. Health to the individual is inherited; but to the nation, acquired. People have so far deviated from those instinctive habits which in their forebears maintained health that they require a professional class to teach them the principles of avoiding disease and of maintaining bodily vigor, health and efficiency. The recent elevation of public health work from a recreation to that of a profession as an entity, or from a social to a sociologic atmosphere, has placed the theory of public health on a new basis.

When the origin and transmission of diseases was little understood, the work of the health officer was uncertain and difficult, and received a corresponding response from the doubting and credulous public. Most health officers are able to produce but little in the way of results. This is due in part to the lack of public support. Many communities still either disregard the value of the conservation of public health, or else have not been shown wherein they need assistance. People are usually satisfied with existing conditions until some one demonstrates what improvements are needed. With the attitude of self-satisfaction, legislative bodies refuse to give the necessary support. The wide-spread opposition is partially due to the inactivity of those practicing physicians who are wont to be termed health officers. Even though receiving only a meager salary, each health officer should give more service for the public good than he receives compensation for, or the position might be abolished.

If a community entrusts its health, its questions of sanitation, the life of its schoolchildren, its danger from transmissible disease, its industrial conditions and its uncertain food-supplies to a busy medical practitioner, the public duties of that health officer can scarcely receive the attention they need. No time can be given for investigating, for following up contact cases, for searching for carriers or for carrying on any propaganda of reform, improvement or public instruction.

Many practitioners seek appointments as health officers with the object of establishing names, of making acquaintances or of receiving small checks without the expectation of rendering services. There are many laymen who debar from their homes the health officer who sees contagious diseases; there are those who condemn the sincere health officer's methods or opinions, or who declare that the officer is indirectly forcing people to

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

consult him. There are many others, both in and out of the profession, who have altruistic motives and understand the import of the work. The service is discouraging to the practitioner in that it frequently causes a restraint of practice or an abuse of privilege by the public. Local professional jealousies also result.

The fear of apparently discriminating against another man's patients or of invading his territory or of losing one's own practice has put the damper on many a willing health officer. The opinion that he is booming his trade or emitting spite against others is the usual reason for the public's disregard for his attempts. It is usually the health officer who has more enthusiasm than practice, with no desire for professional friendship, and who has a free hand, not hampered by calls, friends or politics, who becomes the successful and useful health officer. The neglect or failure to perform public health service while a man is attending private practice results in public damage. This can best be obviated by the employment by a community of a health officer who devotes his entire time to the work. This is a method of procedure that is eminently philosophic.

The modern whole-time health officer is not simply a registrar of statistics, a placarder of houses or a public prosecutor. He is a compiler of statistics, obtaining those records which have not been reported by physicians and classifying all as a means for the foundation of methods for the eradication of disease. He is a public instructor, teaching how health may be maintained and explaining that rules and placards are intended only for the careless and lawless. He is a true sanitarian, who supplies information on various branches of science and industry, but all for the same purpose—the protection of the public. His office should be a bureau of information, to collect and to disperse knowledge. He should not alone formulate, but also execute, plans for saving human life. The improvement of industrial, social, scholastic and vital conditions is his work.

The health officer must of necessity be a critic. His duty is that of pointing out to others the obnoxious or the dangerous. The man who criticizes without suggesting is not the modern man. His work is not merely to inspect, but also to improve conditions in the shop and industries. To give cold condemnation without detailed directions of methods for improvement produces little result except that of antagonism. The average man resents a criticism unless suggestions for improvements are offered. These suggestions should come well within the intellectual or financial ability of the owner to construct and to maintain. A series of suggestions should begin with those simple details requiring the least work or expenditure. It is important to explain the reasons for the changes advised. The health officer who in his suggestion to a dairyman begins with a consideration of tuberculin testing or installation of a flue system will meet with immediate opposition toward all improvements. When the most simple and least costly improvements are suggested first, dairymen accept suggestions and instal the improvements willingly. A list of "Twenty Dairy Suggestions" has been circulated, beginning with "Have the herd examined at least twice a year by a skilled veterinarian." More cooperation would be obtained if the first line began with "Shovel out the manure." Rural school boards can become more interested in public health work if the first suggestion given them concerned the individual tin cup, rather than the direction for admitting light or the most acceptable desks. The instruction and arguments must come within the comprehension of the listener.

The qualifications of a health officer depend largely on local conditions and on the particular kind of work to be done. As the educational facilities for training these men become developed and become appreciated and accepted, distinct lines of public health work may be classified. As the science of curative medicine is composed of various specialties, that of preventive sanitation will be composed of even more widely divergent groups. In the larger fields the work is too voluminous for a single man. It may require only a statistician, an epidemiologist, a diagnostician or an engineer, or one with a laboratory, educational or executive training. So must the health officer be selected, according to his ability and the public needs. A man should be known not alone by the degrees he holds but also by his ability to produce particular results. All esthetic or sanitary work which has but remote connection with the public health is of minor importance when there are lives which can be saved and diseases which can be prevented.

The elimination of disease is the chief duty of a health officer. Since in smaller communities this entails on him an ability to diagnosticate infections, the health officer should be a man of medical training. In Minnesota every township is required by law to have a medical health officer. In larger cities the character of the duties may require a sanitary engineer or, at least, a health officer who is not necessarily a medical graduate. If a city's greatest health problem is the control of disease, the health officer should be a specially trained physician. When there is little danger from disease, and the city employs a health officer to direct its rebuilding along sanitary lines, to keep it clean and to instal water, sewerage and scavenger systems, a sanitary engineer would be the more efficient man. Farmers, plumbers, ministers and carpenters scarcely have the necessary training to qualify them especially for the work of the medical health officer, yet to them is frequently entrusted the local public health.

Whether or not the supervision of garbage collection, street cleaning, sewage disposal, dust eradication, drainage and plumbing should be included in the duties of a health officer is apparently of local concern. In certain places these should all be placed in the hands of another, or entrusted to the city engineer or highway department, but in some smaller cities there seems to be none other than the health officer to manage these enterprises.

If state boards of health have a right to appoint local registrars for collecting statistics, requiring the counties to pay given fees for the work, it seems reasonable to believe that the same centralized authorities have a right to appoint whole-time health officers, to fix their duties, to limit their jurisdiction and to require the local counties to pay given or fixed fees or salaries. The making of appointments by the state board of health would have a tendency to remove from consideration politics, favors, personalities and social obligations, creating more of a civil service régime. The collection of vital statistics is necessary, but the control of those live, diseased and dangerous people, whom the morbidity statistics merely record, is a greater necessity. If a state board of health has the right to appoint local registrars of statistics who draw their pay from the local counties, it has a much greater right to demand that the counties appoint health officers who are efficient; if the counties fail in this, the state board of health should have the legal right to appoint and control local health officers, fixing their salaries and requiring that the compensation for service and expense be borne by the local county or community. As the health of a community affects the state and as

the presence of local disease endangers neighboring communities, the state board of health should have the authority to determine the rate of compensation for local health officers when the local community fixes the salary at such a low figure that no effective work can be accomplished.

In New York,[1] the state commissioner of health may, by law, exercise the powers of a health officer, where health officers have not been appointed, the expenses incurred by him being charged to and paid by the municipality.

To determine in what localities the whole-time health officer is first needed is apparently a power of the state board of health. With the statistics of the local morbidity, with his knowledge of the environmental, racial, industrial, hydrographic and prevailing social influences, the state health executive should be able to determine what available man is best qualified. The jurisdiction of the municipal health officer should extend beyond the confines of the city, exerting an influence over that territory which affects the health of the city. This jurisdiction is exercised in parts of Massachusetts.

The states should be divided into health districts, each district to be presided over by a whole-time health officer. The districting of the jurisdiction of health officers had probably better be considered locally. The limits of a township or a county may give satisfactory results on one hand, but not on another. In a town near the border of a county it would be absurd for the health officer to have jurisdiction in the one county alone. If a community be equally dependent on two counties for those conditions which influence its health, the jurisdiction of the health officer needs wider scope. When adjoining counties combine to employ a whole-time health officer, the various counties entering into combination should have their union sanctioned by the state board of health, which is able to judge of the advisability of giving the health officer the proposed field of jurisdiction and is able justly to divide his time between the combining communities.

The union of the various counties could well be determined by the influence of the included cities or the direction of the railways. The location of the watersheds or drainage areas, the locations of affecting industries or food sources, the location of obstructing rivers or mountain ranges and the lines of commerce or school attendance are all factors which may be used in determining the size and shape of the district to be covered by the health officer. The ease or rapidity of railway travel for the health officer should be considered. It may be necessary to gerrymander rather than to select symmetrical areas as health districts. The topographic locations of those communities best or least able or willing to finance health projects is no small consideration. Neighboring towns can cooperate to employ one health officer who can serve both communities with the adjacent territory.

The size of territory or the population which can adequately be covered by a whole-time rural man would vary widely. It would depend partly on the man, largely on the particular line or lines of health work he was pursuing, and, to no inconsiderable degree, on the kind of transportation at his disposal. These factors would have corresponding weight whether the officer worked alone or with a corps of assistants.

In the recent state legislatures the subject of whole-time health officers was considered. In Minnesota a bill was introduced permitting communities or counties to employ such officers and providing an appropriation permitting the state board of health to assist in establishing the work. This bill died somewhere in the house committee.

In New York a bill to establish supervisory county health officers was passed. The plan provides for the retention of the present town and village health officers, but subordinates these to new officials who are trained public health experts with jurisdiction over larger districts. The state shall be divided into twenty or more districts. The sanitary supervisors are required to be physicians. The law does not specify the salary to be paid these supervisors, but it has been stated that $3,000 was the salary recommended. The law specifies that the minimum salary for the health officers of towns and villages shall be $800, and for towns with a population of less than eight thousand the minimum salary shall be equivalent to ten cents per inhabitant of the community served.

In Massachusetts there are a few whole-time health officials having jurisdiction over rural territory. Their salary is small, varying from $900 to $1,500.

In Michigan a bill drafted by Dr. Victor C. Vaughan was introduced providing for the division of the state into health districts, composed of one county each, except that each city of more than eighteen thousand should form a separate district. Any two counties having a population of less than twenty thousand might organize into a joint health district. Each district was to have a health commissioner, appointed for four years, whose salary would be from $1,500 to $3,000, according to population. This bill failed of passage.

The Pennsylvania county health officers are not whole-time men. They are appointed by the commissioner of health and are compensated by the state at the rate of $1.25 per hour, with expenses.

The value of a health survey for determining the needs of many communities is great, but not too much time or money should be expended on the survey. In a survey numerous conditions which need attention may be brought to light for the first time. The survey can be undertaken by an efficient, unbiased health officer and should cover all the influences over health arising from social, economic, educational and industrial conditions, from child welfare and the origin of disease to factory conditions and food-supplies. The information properly weighted will clearly indicate, as do weighted morbidity and mortality rates, the need of following some particular lines or locality in public health work.

In many localities the physicians probably do not see one half the cases of some infectious diseases. In an outbreak of 166 cases of measles in Rochester, only fifty-two cases were seen and reported by physicians, 114 being located by other methods. Of these 114 cases, however, fifty-seven were secondary cases occurring in homes already attacked, fifty-seven new cases being found in unreported households. The value of collecting complete morbidity reports as an indication of the health and need of a community is evident. Since the registrar usually receives these reports only from physicians, the records are far from accurate, because for the light cases no physicians are employed and the secondary cases in a household are not likely to be reported even though a doctor be in attendance. The light infections being the more dangerous to a community, it is important for their whereabouts to be known that thoughtless and indiscriminate exposures be checked. By the discovery and control of these mild cases the prevention of serious outbreaks is accomplished.

1. State of New York, Tr. 1909, chap. 49, amended 1913, as chap. 559, xcii.

The hunting up of the unreported cases will, almost alone, be sufficient excuse and enough financial gain to recompense a community for adopting whole-time officers. If, by this means, sixty adults a year are prevented from contracting a disease which indisposes them for three weeks, the money saved will supply a health officer. Virtually, two cases of sickness, each of a week's duration, prevented each week will enable a community to employ the services of a whole-time health officer.

A large proportion of contagious diseases are contact cases occurring within the original household. Physicians have a tendency not to report these cases, probably considering the house, not the case, the numeral of morbidity statistics. The importance of knowing the secondary cases is for determining the efficiency of the isolation practiced, the length of incubation and infectivity, the necessity of fumigation and the time for release from quarantine. As shown by experience, the records of these secondary cases can seldom be obtained unless there is a systematic method of follow-up of the original cases with their contacts, which could be accomplished by a man who has the necessary time to devote to the work. When cases of transmissible disease occur, all exposed contacts should be regarded as suspects, being followed up before they in turn have the opportunity to transmit infection. The address is obtained of all susceptible children who are exposed. After the minimum incubation period has nearly elapsed, these contacts are visited, excluded from school and isolated if possible, until the maximum incubation period has passed. This plan may encounter some public opposition until its necessity is clearly explained. After the minimum incubation period has passed, it is advisable to placard the homes of those who are exposed and are susceptible to measles, scarlatina, whooping-cough and small-pox. It seems advisable to include whooping-cough with measles in the list of reportable diseases, and for smaller towns rubella and mumps, making every reportable disease a placardable disease. The results in Rochester show that isolation and placarding have been the greatest factors in decreasing disease. Many houses are not placarded early enough because these contacts cannot be discovered. The rules following placarding have been generally observed, and no outside secondary cases have developed from the placarded homes.

The municipal health officer should be apprised of cases of transmissible disease which occur in the immediate locality which supplies food or water to the city. The cooperation between rural and municipal health officers may frequently prevent great damage being done to the city. Should a country physician or rural health officer learn of the probable contamination of a municipal wafer-supply by typhoid discharges, the city should immediately be notified of the facts. When the county practitioner is called in a case of typhoid, he should immediately notify the local health authority of the conditions, giving all connections, present and remote, that the patient has had with any supply which later becomes a public food or drink.

The control of contagious diseases in schools depends on the exclusion of the children before they begin to show symptoms. This may be accomplished by following up all susceptible children who have been in contact with infective cases, and excluding them from school after the minimum period of incubation for the particular disease has passed. The homes should then be placarded and the children watched until the maximum incubation period has passed. Whether they develop the disease or not, the children should be returned to school at the earliest day after the stage of infectivity has passed. Most people are not able to give the names of all others with whom their children have come in contact during the previous few days, and those who are thereby overlooked are sufficient to keep the exanthems endemic in any city.

When a case of communicable disease appears in the country, it is the duty of that community to prevent transmission of the disease. Some one by a personal visit should obtain a list of the addresses of all susceptible persons who have recently been exposed. Each locality into which they have gone has become endangered. To check the development of multiple foci the people should be notified, that approximate isolation may be provided before the infective stage begins. A notification is due the various school authorities. Should some exposed children attend a city school, the authorities there have a right to expect some notification, that the infection may be kept from among them. When those exposed have passed the minimum incubational period, they should be examined that the appropriate measures may be instituted. The known infected patients should be seen even before they are ill enough to require a physician. By the time their doctor sees them they have done the damage of infecting new households. The first patients to develop exanthems are the ones who most concern the public health official and should receive directions from him. The logical person to discover these early cases is the health officer. If the health officer would only find and isolate these, there would be fewer cases later. The early inspection checks the outbreak. The multitudinous inspections take much time, but it should be the purpose of the health officer to devote much time, his whole time, to the work.

With the perfection of state-wide organizations of whole-time health officers and the formation of the much-needed national Department of Health, a cooperative system will be developed, with relationships similar to, but with affiliation closer than, the state militia with the federal army.

ABSTRACT OF DISCUSSION

DR. W. C. RUCKER, Washington, D. C.: As nearly as I can sum up the paper, it means, first, that there should be persons who devote all their time to caring for the public health, and, secondly, that they should go about this in certain ways. Health work should be in the hands of professional health workers. There are too many "swivel-chair" sanitarians in this country. The people of this country are practical, hard-headed people, and when you do a thing they want to be shown why.

In a certain city in which I was once engaged in sanitary work, we were endeavoring to teach the people that it was dangerous to distribute garbage promiscuously. We had a large number of volunteer health officers, not medical persons at all, but persons who were engaged in this work as a social pastime and as a "temporicide."

I take issue with the first paragraph of Dr. Woods' paper. If I understand him correctly, he stated that the sanitary instinct of the people is retrograding. I think that the sanitary instinct of the people is just as strong as it ever was; but the fact is this—that when we get a crowd of people together in a small area, we are violating biologic laws; unless we throw around them certain protective systems, these people are going to die of their own excretions; and the task of the practical health officer is to protect people against their own excretions.

DR. W. A. HOWE, Albany, N. Y.: The more I see of this question of public health, the more I am convinced that the public health is a public business, and not a public philanthropy; and I think, as Dr. Rucker has just said, that too

many people are meddling and interfering with things about which they know nothing. In New York State we have had our greatest trouble in financing our public health business. Last year $176,000 were available for the entire state of New York with which to look after the health of its people, exclusive of the city of New York. That amount for a great state like New York is too small. We are fortunate to-day in having a governor and a legislature who have looked at the price of public health from the right point of view. We are in a position now to divide the state into twenty districts and place at the head of each district a supervisor who receives $3,500 a year and devotes his whole time to the work of the district. We are also in a position to have nine divisions in our department and to place at the head of each division a director who will receive $5,000 a year for his services. Our commissioner will receive $8,000 per year, instead of the pittance of $3,500 with which he began. In other words, the state of New York to-day is recognizing the fact that the public health is purchasable and is getting ready to pay for it. If we fail in our work, the discredit will be to the administration of the health affairs of the state.

DR. OTTO P. GEIER, Cincinnati: I believe the statement that the full-time health officer is paid in dollars and cents as well as in health is not arguable. In Cincinnati the salary of the health officer was raised from three thousand dollars to five thousand dollars. During the period in which this full-time health officer has been working the health appropriation has increased from fifty thousand dollars up to sixty thousand dollars. It appears, therefore, that that health officer on full time had been able to show the community that full time pays and that good health work pays.

We have a greater difficulty, however, than the one of proving that a full-time health officer pays, and that is, to entice the community into wanting a health officer on full time. We can agree that it pays, but how are we going to get the thousand and one communities of the country to see the truth of this principle? I do not know whether the American Medical Association owes that to the country, or whether it owes it to this section, but it seems to me that some propaganda should be started to induce communities to want good health.

One other point impressed me. I wonder whether we as hygienists are paying enough attention to the new movement of social service. If we desire morbidity reports that are worth while, then we must have these diseases reported. I believe in better cooperation between the social workers and the health department. The social-service worker, acting in cooperation with the health department, will bring forth cases which otherwise escape absolutely and which are foci of infection to the community. I believe, likewise, that the health officer can afford to put some emphasis on this subject just now, because in giving a better interpretation of his work and by injecting social service into the institutional life, the quarantine capacity of our hospitals is increased. In Cincinnati we have increased the capacity of our hospitals by excluding the unworthy cases, about 16 per cent., and have been able to take care of about 20 per cent. more cases of the fever and contagious type.

DR. J. N. HURTY, Indianapolis: The all-time health officer is certainly coming. In Indiana the state board of health presented a bill in which it was provided that every county should have an all-time county health commissioner to serve four years. That is the time limit in our constitution. The bill, we thought, was a good one, well prepared, and well thought out. It did not pass. The opposition came from the health officers already in office, from the local league of medical freedom and the Christian Scientists. In order to secure all-time health officers, we must fight the present health officers. In Indiana every county has a county health commissioner, every city has a city health officer, and every incorporated town has a town health officer. Their duties and power are well defined. In all there are 643 of these officers. The new proposition of the board of health would cut them down to about 120. The increase of expense would be about sixty thousand dollars a year over what it now is. But two-thirds of the money now spent is wasted, because of inefficient health officers and too many of them, and because they do not give all their time to the work, but must earn their living practicing medicine. Until the present system goes, the very best health work cannot be done.

DR. PAULINE M. TOWNSEND-HANSON, Marshalltown, Iowa: In order to get rid of the opposition of which Dr. Hurty just spoke and which will spring up wherever these health bills are introduced into the legislature, we do need the women; we need to have the lay public aroused, organized and educated. The profession must teach the lay public to become actively interested in public health work. In my own county (Marshall County, Iowa) there are from thirty-five to forty-five physicians; and in Marshalltown there are sixteen thousand people. I do not know the population of the county, but it is not for these thirty-five or forty-five physicians to say to the people, "You shall do this, that and the other thing for your health;" it is for us as physicians to teach them the scientific data that we know in regard to health, and for them to tell us what they will have. In an effort to get that arrangement, we have formed an association of the lay public for Marshall County. It is a representative body, composed of every organization in Marshall County that is willing to send delegates; and every organization in Marshall County not willing to send a delegate will be considered a custodial member of the Marshall County Health Association. This health association has a board of officers, and on this board of officers are represented the mothers' club movement, the women's clubs, political parties, churches, the schools and the medical profession. The call for a conference at which this organization had birth last month was signed by the president of the county medical association and by the county chairman of the Committee on Public Health Education Among Women of the American Medical Association. It was supported by the ministerial association, and by the county supervisors, and the county supervisors defrayed expenses.

It seems to me that an organization of that kind is an essential factor in furthering this work of sanitation.

DR. E. F. OTIS, Peñuelas, Porto Rico: We have accomplished in Porto Rico what has been forced on us by circumstances. I am heartily in agreement with Dr. Wood that there should be a local health service that is not governed through political influence; and I recommend the civil-service method. Thus far, we are getting splendid results. Education is one thing that we need in the management of the epidemics, and in order to secure that we must work with the people and be one of them, so far as we consistently can. This was illustrated in an epidemic of typhoid which we had in my town. The people were ignorantly prejudiced against all forms of sanitation when we started the work. We went right into their families and told them the dangers of the infection and how to avoid it. For those who were able to read, we posted the mimeographic copies of instructions about typhoid on the inside walls of the house and told them that it was their duty to read these instructions daily. By that means we gradually educated them. Afterward we obtained the support of the children. Whenever there was a sick person in the town the children would tell us about it. So by gaining their sympathy and support, we find that we are able to do much more than by emphasizing the official side.

DR. M. W. RICHARDSON, Boston: Dr. Wood spoke of the state inspection system in Massachusetts and of the salaries paid to inspectors as being from nine hundred to fifteen hundred dollars annually. That statement was erroneous. Our health district system consists of twelve districts, and the pay of the district inspectors, who are medical men in all instances, is approximately two thousand dollars a year. The state, however, does not at present require all the time of these inspectors and that is, of course, unfortunate. We hope, however, in the near future to obtain larger appropriations for this work so that we can command all the time of the inspectors and pay them more adequate salaries. As a matter of fact, our experience has been that these men, even under present circumstances, have given more and more of

their time to the public health work and that their practice has actually gone to the wall. They have, therefore, given practically all their time to the public health work for a very small and inadequate compensation.

DR. HAROLD B. WOOD, Rochester, Minn.: It is an advantage not to take a practitioner of medicine who is licensed to practice in the state and gradually absorb him into the service, because people will many times request him to do medical service, thereby taking up his time. He should be so placed that he is not permitted by law to practice medicine within the state. The work of publicity must be frequent and constant.

OSTEOCHONDRITIS DISSECANS *

JOHN RIDLON, M.D.
CHICAGO

My excuse for reporting these three cases is that the condition is so rare that many eminent internists and general surgeons do not take it into account when considering the diagnosis of knee-joint trouble. Further, of the cases that have been reported, few have been presented in connection with roentgenograms showing typical conditions, and without roentgenograms I cannot well understand how a certain diagnosis can be made prior to operation.

REPORT OF CASES

CASE 1.—A man, 38 years old, was seen July 10, 1911. There has been trouble for three or four years in the left knee, though no cause for it is known. It is stiff after sitting

Fig. 1.—Case 1. Normal knee. Anteroposterior view.

and is sensitive at times. It has been materially worse for the past month.

Examination.—The patella floats, but does not "click." The midpatellar circumference of the left knee is three-fourths inch greater than the right; just above the patella it is 1¼ inches greater. There is no restriction of motion and no muscular atrophy.

The roentgenogram shows a typical piece as large as a prune pit at the bottom of the inner condyle of the femur. An operation for the removal of this piece was advised.

I discussed the case with an eminent general surgeon, who admitted to me that he had never seen or heard of the condition. I sent the patient to him for examination as a subject of interest. After the examination the patient reported to me that the eminent general surgeon had advised against an operation for the removal of the detached piece and had said in substance that he had cured many such knees by the injec-

Fig. 2.—Case 1. Osteochondritic knee. Separated piece showing on bottom of inner condyle of femur.

tion of iodoform. Since then I have not seen the patient. Recently, March 30, 1913, the man wrote me that in August, 1911, the surgeon aspirated the knee and injected iodoform emulsion; after which he wore an elastic knee-cap. Eight months later, April, 1912, the knee puffed up again and became somewhat stiff and painful. The injection was repeated, May, 1912, a few months after that the knee was so much better that the patient discarded the knee-cap, and for a number of months the knee has felt entirely normal.

CASE 2.—Man, 27 years old, was seen by my partner, Dr. Charles A. Parker, Aug. 12, 1911. For five or six years there has at times been a tendency to contraction of the right hamstring muscles. Usually the knee is not painful; but it is somewhat so during damp weather. The knee has never been swollen or stiff except as above mentioned.

Examination.—The patient walks with a limp and with the right knee held flexed at an angle of 15 degrees. The knee can be fully flexed, but lacks full extension by about 15 degrees. The site of the pain is along the side of the biceps tendon. There is no swelling; the leg measurements are identical. The man is a railway employee and jumps on and off a train without pain. The roentgenogram shows practically the same condition as in the first case.

Removal of the detached piece was advised; but the patient did not return, and has not replied to a letter of inquiry with regard to the present condition and what has been done for it.

CASE 3.—A man, 24 years old, the son of a physician, was brought under my observation in September, 1911. He first experienced trouble with the knee after playing hockey while in college some six years previously. The patient called the trouble "a throwing out." Just before I was consulted the knee had again given trouble while swimming.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

Examination.—The knee showed no swelling, no tenderness, no restriction of normal flexion and extension and no sensation was felt by the examiner's hand when the knee was flexed and extended. The roentgenogram showed a detached piece, not on the lower surface of the inner condyle as in the other cases, but on the outer aspect of the condyle. After viewing the roentgenogram it was possible to feel the detached piece which had before escaped our notice. An operation for its removal was suggested and was refused by the young man's father.

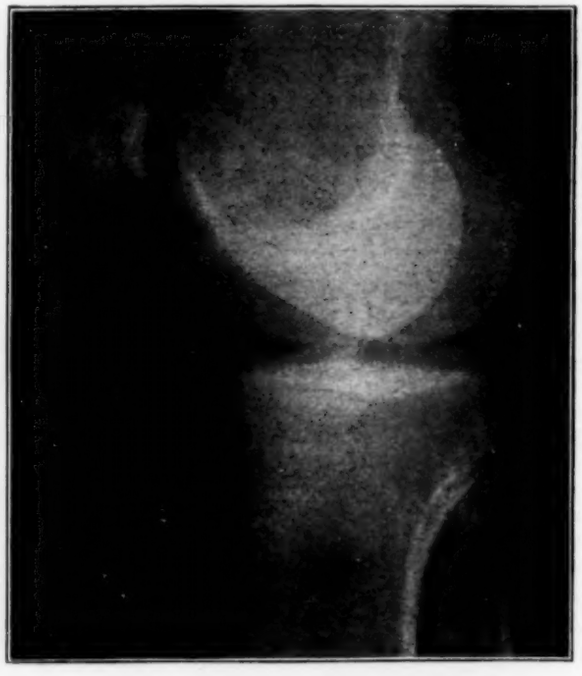


Fig. 3.—Case 1. Lateral view of normal knee.

March 4, 1913, the patient wrote that after my examination he wore a rubber knee-cap for some time and that the knee seemed well. But while in the Michigan woods last summer, some ten months after my examination, he often experienced a tightening of the cords and a kind of grinding sensation in the knee-joint after exercising freely. At the present time the knee seems to be practically normal except that it is about an inch larger than the other knee. This enlargement the patient thinks was present when I examined him, but my notes are lost and I do not remember that the knee was swollen.

Here, then, in three healthy, active and vigorous young men are three knees that have given trouble only a little throughout a period of many years; which show nothing save possibly a little swelling and a lack of full extension at times from contracted hamstring muscles; nothing on which to base a diagnosis until we come to a careful examination of good roentgenograms. Nothing is to be learned from the treatment of these cases except that they may go on for years giving little trouble. The treatment of the first case by the eminent general surgeon by aspiration and injection of iodoform is too absurd to warrant comment.

SUMMARY

Now let us consider for a moment what is known and thought by others about osteochrondritis dissecans, what has been done and with what results. My attention was directed to this condition by Freiberg's very complete report of a case.[1]

Freiberg's patient was a girl, 20 years old, having trouble with both knees. There had been pain and frequent joint-locking since childhood. At 17 years of age, while in Russia, both knees had been opened and loose bodies removed, which were afterward seen by the patient. A second operation became necessary because of the appearance of more loose bodies. No roentgenograms were made in Russia. These operations afforded relief. At no time had there been any injury to the knees that was remembered. On examination by Freiberg pain was complained of in walking, but more on standing. The right knee was more troublesome than the left. Both knees appeared to be somewhat swollen, but both had normal motion. There was no muscular atrophy and no crepitation or grating on motion in either joint.

Roentgenograms showed two separated pieces on the lower surface of the inner condyle of the right knee. The roentgenogram of the left knee showed no loose pieces, but the lower surface had lost its normal convexity and was somewhat concave, and the condyle had lost somewhat of its vertical bulk.

When the right knee was opened a loose body, the size of a cherry, was found, attached to the inner condyle by a slender pedicle of connective tissue and synovial membrane. This was removed. Nothing was seen of the two fragments shown in the roentgenogram or of the defect of the inner condyle. The cartilage appeared of different color here than elsewhere, and pressure on it seemed to indicate that it was loosened from the underlying bone. This was left alone, as Freiberg at that time did not know that Ludloff had cut through the cartilage and removed the loose fragment in a similar case. In the left knee no loose body was found. The mesial condyle of the femur appeared unusually flat and somewhat irregular in surface, but was covered with cartilage of normal appearance.

Ludloff[2] (still quoting from Freiberg) reports two cases in which the diagnosis was based on the roentgenogram and

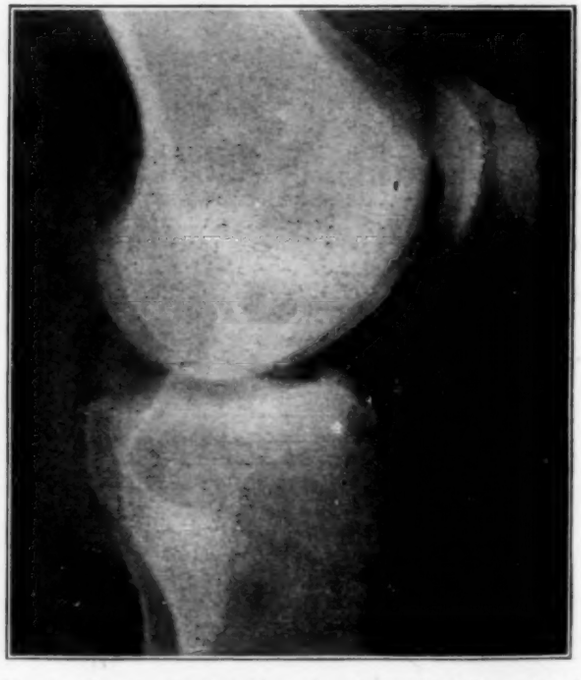


Fig. 4.—Case 1. Lateral view of osteochondritic knee, showing separated piece on inner condyle.

was confirmed by the operation. In both cases the roentgenogram showed a body about the size of a date-seed which had apparently separated from the inner condyle of the femur opposite the insertion of the posterior crucial ligament. It appeared to lie in a cavity hollowed out of the condyle. In the first case the cartilage was intact over the body and it was liberated only by incision; in the second case a part of the

1. Freiberg: Am. Jour. Orthop. Surg., February, 1910, viii, No. 3.

2. Ludloff: Arch. f. klin. Chir., 1908, lxxvii; Centralbl. f. Chir., 1908; quoted by Freiberg, see Note 1.

bone fragment had already separated as a free body. In this case the other and supposedly normal knee presented in the roentgenogram a similar condition.

Freiberg credits Koenig[3] with the first description of this knee-joint affection and the name. It appears to the writer that our present knowledge of this condition does not warrant us in discussing its relations to other loose and partially detached bodies in the knee-joint, or to its possible relation to osteo-arthritis.

72 Madison Street.

ABSTRACT OF DISCUSSION

DR. ALBERT H. FREIBERG, Cincinnati: I think that the first two cases Dr. Ridlon showed are typical examples of this condition, and I consider it safe to prophesy that, if we may follow these cases, it will be found that loose bodies will appear in both of them eventually. A great many years ago, Koenig suggested the existence of a distinct and separate disease to which he gave the name of osteochondritis dissecans as the explanation of loose bodies, particularly in the knee and the elbow, for which no other explanation previously given had proved to be adequate. Previous theorizing on the subject had been unsatisfactory. These bodies had been supposed to be due to the coagulation of fibrin in the synovia of the joint, to the knocking off of some pieces by traumatism, etc.; but that they resulted from a distinct and separate affection of the bone and cartilage had not even been suggested by any one before his time. Koenig's conclusions had been arrived at as the result of the examination of these knees during operation. It seems to me perfectly evident that we have here a distinct disease, which presents characteristics unlike those of any other disease of the joints which

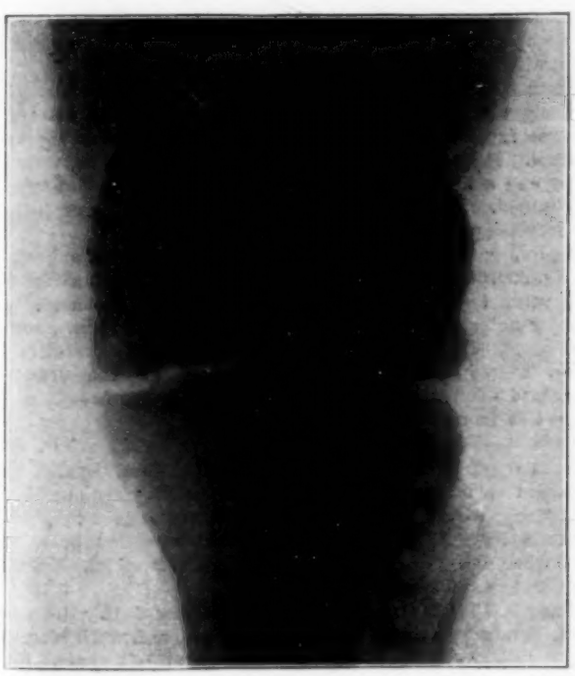


Fig. 5.—Case 2. Separated piece on bottom of inner condyle.

we encounter. I do not think that the disease can be considered osteo-arthritis simply. It was the view of Dr. Woolley and myself, as the result of the pathologic examination of the material from this knee, that it was likely that vascular changes should be regarded as the causative factor in the production of the condition and the loose bodies that resulted.

The question of what should be done for a patient giving the history of the condition that these patients of Dr. Ridlon present, with no condition calling for the opening of the joint and the removal of the loose body, is a matter on which there may well be some doubt in our minds. It is not inconceivable, however, that bodies that have been loosened from their surrounding bases, as these have been, as the result of the pathologic process may again become adherent, and that therefore loose bodies need not necessarily result. I should consider that if a person were in a walk of life that would call for a considerable use of the knee, so that attacks such as Dr. Ridlon has described would occur frequently, it would be justifiable

Fig. 6.—Case 2. Normal.

to open the knee and remove the offending material. The operation would not be other than an ordinary arthrotomy in any of its characteristics, I believe.

DR. R. T. VAUGHAN, Chicago: Last year I saw a case with Dr. A. E. Halstead in which we operated for a foreign body in the superior recess in the knee. After we took it out, we found that on one side it was distinctly bony and on the other cartilaginous. On making a more careful examination of the roentgenogram, we discovered a little indentation, shaped like the foreign body, over the internal condyle of the femur. On looking up the literature of the subject, it seemed to me that such foreign bodies have been interpreted in the past as quite pathognomonic of arthritis dissecans; and we so considered this case, although we had no further evidence as to its possible etiology beyond the early trauma.

DR. EMIL S. GEIST, Minneapolis: I should like to ask Dr. Ridlon how he explains the symptoms in the case he cites in which, if I understood him correctly, there was no apparent destruction of the articular cartilage.

DR. JOHN RIDLON, Chicago: In answer to Dr. Geist, I do not know why these joints with the cartilage apparently normal on the surface have symptoms.

As to the tibia, I know my anatomy well enough to know that the top of the tibia has terminal arteries, as I am told the internal condyle of the femur also has.

DR. ALBERT H. FREIBERG, Cincinnati: Lexer's work shows that there are terminal arteries in the upper end of the tibia. It is the same in the elbow. That is the explanation of the fact that most loose bodies are found in the knee and the elbow.

DR. JOHN PRENTISS LORD, Omaha: I am reminded of a case that I reported some years ago, in which there were eight large bodies of this kind in a joint, and the symptoms had become so distressing that the patient was unable to carry

3. Koenig: Deutsch. Ztschr. f. Chir., 1888, xxvii, quoted by Freiberg.

on his occupation and was incapacitated for months at a time. The bodies were so large and irregular and were so placed that the only way in which I could remove them was by dividing the patellar tendon, opening the joint wide and turning it backward. It was then only with difficulty that I could remove the bodies from behind the condyle. The radical operation for the relief of the condition in this extreme case was rather unprecedented, and the result was ideal. There was perfect primary union and perfect restoration of function. The case was extraordinary on account of the size and number of the bodies.

DR. ALBERT H. FREIBERG, Cincinnati: The process in which a large number of free bodies are found in the joint is different from this process of osteochondritis dissecans. That arthritis deformans or osteo-arthritis results in the production of large numbers of free bodies in joints has long been known. There is no discussion as to their nature. When there are eight or ten, or from fifty to one hundred, of these bodies, the cases are osteo-arthritis; the pathology is perfectly apparent, and we usually find the other changes of this disease.

DR. JOHN PRENTISS LORD, Omaha: I am fully aware of the point that Dr. Freiberg has made. I had an opportunity to have the joint wide open and could see the various points on the articular surface—particularly on the condyles, one part of which was flattened by the casting off of these bodies. They were of such irregular bony consistency that they were entirely different from ordinary joint mice, so-called. In connection with the same paper, through the courtesy of the late Dr. Bernays, I exhibited a pint bottle containing 580 bodies of this kind, which were quite large. They were all polished, however, and were evidently produced by the process that Dr. Freiberg has referred to. It seems to me that the condition found in that joint would indicate that my case was of the particular type under discussion.

RESULTS OF BONE PLASTIC AND GRAFT OPERATIONS ON THE SPINE FOR THE CURE OF POTT'S DISEASE *

JOHN JOSEPH NUTT, M.D.
NEW YORK

In assuming the position of surgeon to Sea Breeze Hospital in November, 1912, I received under my care ten patients who had been operated on for tuberculous disease of the spine. Five other patients who had been operated on and discharged have been examined by me, some of them several times. Thus I have had the opportunity to study the results in fifteen cases.

Fully realizing the importance of correctly interpreting these results, on account of the influence this report may possibly have in either deterring others from or encouraging them to adopt these operations, I have attempted a tabulation of all the factors which are of value in reaching a conclusion in each case and present copies of the tracings of the kyphoses taken from the history sheets. After a study of the temperature charts, it did not seem worth while to reproduce them. The rise and fall for months before the operation was in each case almost identical with the curve as charted for months following the operation. I worked out some of the averages. One case, for instance, had an average temperature for August, 1911, of 98.94, and for August, 1912, of 98.77; in Case 4 the average for May, 1911, was 98.8, and for July, the month following the operation, it was 99.2. Those who were running rather high temperatures before the operation, continued to do so afterward. Nor did a study of the changes in weight of these patients throw any light on the success of the operation; there were no great changes except in those who did remarkably poorly.

The plastic operation consisted in splitting the spines of several contingent vertebrae in a plane coincident with the anteroposterior mesial plane of the body, fracturing these split portions near their bases, bending one-half of each spine upward and the other half downward and with sutures securing each half to the opposite half of the vertebra above or below, as the case might be.

The graft operation consisted in transplanting a piece of bone from the tibia of the patient to a bed made for it by splitting the spines of the vertebrae to be immobilized.

CASE 1.—The patient had treatment for one year and nine months before operation. Tracings show some increase in deformity but the patient was without orthopedic treatment for three months while in another hospital for scarlet fever. At the time of operation the disease seems to have been under control. Nine months after operation all protection was removed. Four months later stiffness of the muscles was noted in the history and soon afterward frame treatment was resumed. The patient is at present wearing a jacket.

CASE 2.—The patient had marked kyphos when admitted. The general condition was good; there was no muscular spasm and no sign of abscess. Treatment was with Calot jacket. The child did not stand well and two months prior to operation was placed on a frame. Eight months after operation protection was removed. One week later: "Child walks somewhat awkwardly but has no pain. Spine flexible except region of operation where it seems rigid." Seventeen months after operation: "No sign of local activity although child rests herself with hands on knees occasionally. To be kept in bed one-half of each day." One month later, Oct. 1, 1912: "Has grunting respiration. Plaster-of-Paris jacket applied."

CASE 3.—The patient was under treatment for four years and eight months before operation. There is no history of abscess formation or evidence of the disease not being under control. Following operation a plaster jacket was worn for eight and a half months. Eight months later the patient was discharged. Examination Jan. 9, 1913, showed some increase in deformity, but no evidence of muscular spasm.

Including the eight months' plaster treatment subsequent to the operation, this spine was treated by apparatus for over five years and, taking into consideration the absence of any history notes pointing otherwise, it would seem to be a reasonable conclusion that the disease was arrested; certainly the spine was in excellent condition, and, as the deformity increased after the removal of all support, the benefit of the operation in this case is doubtful.

CASE 4.—Examination on admission: "Condition fair. Stiffness in upper part of spine. No sign of abscess. Lymph-nodes enlarged on both sides in cervical and axillary regions."

History would indicate that treatment was not efficient. Examination, April 15, 1913: "General condition poor. Has had whooping-cough since discharge from hospital. Grunting respirations. Deformity increased."

CASE 5.—The patient was admitted a few days after operation. History notes were indicative of progress until March 26, 1912: "Spine O. K. No spasm. Spasm of left psoas. To be kept in bed. Some thickening in left iliac fossa."

October 15: "Psoas contraction nearly disappeared. No abscess tumor can be felt. Is running about without symptom."

Nov. 7, 1912: "Limited extension of left thigh. Discharging sinus. Walks with difficulty and every evidence of apprehension."

CASE 6.—On admission: "In good general condition. Marked kyphos dorsolumbar region. Spasm and rigidity of back muscles."

After two and one-half years' treatment: "General condition excellent. Considerable recession of kyphos."

Postoperative notes show spine to be in good condition.

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

RESULTS OF OPERATION IN FIFTEEN CASES OF POTT'S DISEASE.

	Location of Infection. Admitted.	Age on Adm. Yrs.	Duration on Admission. Mos.	Length of Hospital Treatment before Op. Yrs.	History Note before Operation.	Condition at Time of Operation.	Date of Opera'n.	Nature of Oper.	Time after Op. all Protection Removed. Mos.	Length of Hospital Treatment after Op. Mos.	Time after Operation and Nature of First Sign of Insufficient Protection.	Present Spinal Aprts.	Deformity Increased as Shown by Tracing.	Muscular Spasm Present.	Operation Beneficial.
1	11 D.—1 L. 6/26/09	2½	6	1¾	3/9/11. General condition good. Still on br'd frame. Spine fairly flexible each side of kyphos.	Fair	4/ 1/11	Plastic	9	‡	6 mos. Peculiar walk	P. P. J.	Yes	Yes	No
2	9 D. 6/24/09	3	?	1¾	12/29/10. Spine fairly flexible each side of kyphos. Ordinary jack app. Stands with hands supporting head. 2/25/11. J. fails to support well. Placed on frame.	Fair	4/ 1/11	Plastic	8	‡	5 mos. Supports with hands on knees	P. P. J.	Yes	Yes	No
3	7 D. 8/20/07	2	6	4⅝	4/7/10. Jackets have not been applied correctly. Placed on frame.	Excellent	4/27/11	Plastic	8½	17	No return of sign or symp.	None	Yes	....	Doubtful
4	9-10 D. 6/21/10	5	18	1	3/11. Child stands and walks awkwardly. To rest in bed.	Acute	6/ 8/11	Plastic	7	16	? Grunting resp.	None	Yes	Yes	Doubtful
5	12 D.—1 L. 8/12/11	2½	6	*	.....	Unknown	8/ /11	Graft	5	‡	7 mos. Psoas spasm	Frame	No	Yes and abscess	No
6	Dor.—Lumb. 4/25/09	3½	18	2 7/12	10/21/11. General condition excellent. There is a considerable recession of kyphosis.	Excellent	11/ /11	Graft	2	¶	No return of sign or symp.	None	No	....	Yes
7	8 D. 8/20/07	3	6	4¼	No note during previous 6 m.	Arrested	11/16/11	Graft	..	9	No return of sign or symp.	None	Yes	....	No
8	9 D. 4/11/08	3	?	3 7/12	7/10. To be discharged as cured. (Attending surgeon changed.)	Arrested	12/14/11	Graft	2¼	9	No return of sign or symp.	None	Yes	....	No
9	8 D. 2/28/12	4	?	*	.....	Unknown	3/ /12	Graft	2	‡	? Supports with hands on knees	Brace	Yes	Yes	No
10	11 D. 2/28/10	5	6	1¼	2/17/12. Kyphosis increased since last tracing. Spasm marked when passive motion attempted. General condition good.	Acute	5/25/12	Graft	2	‡	6 mos. Psoas spasm	Brace	Yes	Yes and abscess	No
11	9-10 D. 6/20/11	2	9	1 1/12	10/21/11. Local condition much improved. Kyphosis much less prominent.	Excellent	7/15/12	Graft	2	‡	No return of sign or symp.	None	Yes	....	Yes
12	12 D.—1 L. 7/24/10	6	24	2	12/30/11. Considerable recession of kyphosis. To obtain permission to operate.	Fair	7/19/12	Graft	1½	‡	10 wks. Stiff walk	None	Yes	Yes	Doubtful
13	Dor.—Lumb. 5/28/08	4	12	4 1/6	4/9/12. Hip very sensitive to all attempts at passive motion. Limb held in flexion and adduction.	Arrested	8/12/12	Graft	‖	‡	No return of sign or symp.	Hip traction	No	....	No
14	8 D 8/22/05	3 (for T. B. knee)	?	†	7/09. Discharged; wearing jacket. 2/13/10. No increase of deformity. No evidence of active disease.	Arrested	6/10/12	Graft	1½	**	No return of sign or symp.	None	No	....	No
15	12 D. 5/3/12	5	?	*	5/26/11. Readmitted. Notes concern the knee.	Unknown	4/ /12	Graft	§	5	1 mo. Awkward walk	None	No	Yes	Yes

* Operation before admission.
‖ Bed treatment continuous.
¶ Still under treatment (for a mastoiditis).
† Spine infection one year and four months after admission. Operation six years later.
§ Without protection since admission.
‡ Still under treatment.
** Under observation for knee.

Case 7.—The patient received four years' and three months' treatment before operation. The history during this period gives no evidence of anything but satisfactory progress. Tracings show a remarkable increase in deformity between Feb. 16, 1911, and May 25, 1911, without any explanatory note. From this history I judge that the disease was arrested at the time of the operation, and subsequent tracings show that the operation failed to prevent increase of deformity.

Case 8.—After being in the hospital for two years and three months the patient was pronounced cured and ordered discharged wearing a jacket. She was retained, however, and was operated on. There are no notes indicating a return of the disease. All that the operation could have been expected to do in this case was to do away with the necessity for any external support of the weakened spine. In this it was a failure.

Case 9.—The patient was admitted immediately after the operation. An interesting point in this case is found in the tracings. December 12, the patient was placed on a frame and a month later the tracing showed a marked recession of the deformity. She was then allowed to be up without protection for a month, and a tracing at that time, February 16, showed the deformity to have again increased. (Figs. 1 and 2.)

Case 10.—On admission: "Marked kyphos at second dorsal. Spasm of back muscles. No sign of abscess. Glands normal." History prior to operation gives no indication of abscess formation. On account of the note three months before operation, I have classed this as an acute case.

Oct. 8, 1912, five months after operation: "Wound has remained healed (there had been a stitch abscess). No evidence of active disease or lack of support. Has been up and about since eight weeks after operation."

Nov. 7, 1913: "Left psoas contraction. Tumor in left iliac region. Discharging sinus lower end of dorsal wound. Apprehension marked." (Graft 5 by ½ by ⅓. Figs 3 and 4.)

Case 11.—History notes of this case show that the improvement before operation was marked. April 16, 1913, nine months after operation and seven months after removal of apparatus: "General condition excellent. Extension of left thigh may be slightly less than right. Tracing shows deformity to be slightly increased." It might seem wiser to withhold a verdict in this case for several months.

Case 12.—Six months after admission and six months before operation: "Local condition improving rapidly. General condition excellent. Spine flexible each side of kyphos." Four months after operation: "Movement in lumbar region, below site of operation, limited. Some restriction of extension of the thighs."

Case 13.—From the history it would seem that the spine had been in excellent condition for about a year before the operation and that the hip was demanding the most attention. Nov. 7, 1912: "Spine evidently in excellent condition. Hip shows spasm in extremes of motion. Patient has been in bed continuously since operation."

Case 14.—The patient was admitted for tuberculous knee. Pott's disease was discovered one year and four months later. History points to the knee having been at all times the more serious focus. No active symptoms are recorded in connection with the Pott's disease. It can scarcely be doubted that the spinal infection was arrested at the time of the operation.

Case 15.—The patient was operated on shortly before admission. Fifteen days after operation: "Walks awkwardly. Plays about." April 15, 1913, about one year after operation: "No increase of deformity. Walks awkwardly. Slight spasm of right psoas." We have but little information about this case. Probably a final verdict should not be offered for at least another six months.

CONCLUSIONS

1. While I do not unqualifiedly condemn the operation on account of the poor results in some of these cases, I do not believe the claims which have been made for it have been substantiated (see illustration from Annual Report of Sea Breeze Hospital).

2. If alterations in technic, such as the implantation of a longer graft, and the extension of the period of postoperative use of external support, are to improve the results, then reports should be forthcoming two years after the operation and not before.

3. The danger in the use of the operation does not lie in the operation itself, but in the creation of a sense of false security, a feeling that a cure of a chronic disease has been produced, and a consequent neglect of other therapeutic measures.

2020 Broadway.

Fig. 1 (Case 9).—Roentgenogram, taken in May, 1913.

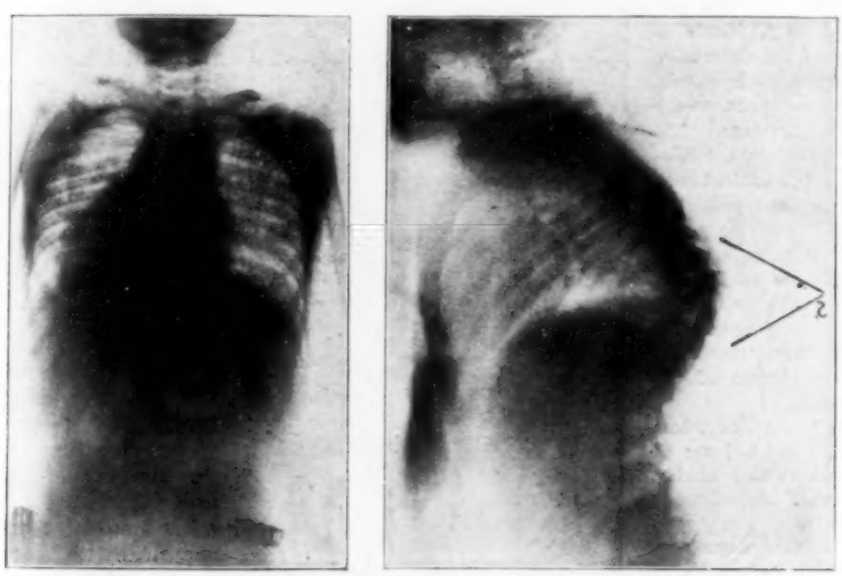
Fig. 2 (Case 9).—Roentgenogram, taken in May, 1913. Present activity of the infection, fourteen months after operation, is clearly shown in these two pictures.

ABSTRACT OF DISCUSSION

Dr. John Ridlon, Chicago: The report of Dr. Nutt is a word of caution that it is well to have spoken. We cannot expect, by any operation, or by any maneuver or any method of treatment, to cure all these patients or have them all do well. Some will do badly, whatever we do in an operative or a non-operative way; and no one should be so enthusiastic over his own method of treatment as to lead the general public or the general practitioner to believe that all patients can be rapidly cured by this one method of treatment.

Dr. Reginald H. Sayre, New York: In the various cases that are noted in Dr. Nutt's report, if you will look at the tracings, you will see that almost all had distinct improvement in position in the tracing taken immediately after operation, as compared with the tracing taken immediately before operation. Little by little, however, this curve became more pronounced until, in a good many instances, the result within a year or eighteen months after the operation was still more curve than had existed prior to the operation. In a case that I have observed, in which one of my colleagues operated in

my service while I was abroad last year, no protective support has been applied. I did not put any protective support on the patient when I came back, being anxious to see what would happen. The spine of the child gradually became more and more curved, and the roentgenograms taken at intervals of from six weeks to two months showed progressive degeneration of the inflamed part of the spine; there was more loss of substance in the inflamed part of the vertebrae than was present a year ago, showing that the operation itself has not caused a change in the diseased part of the vertebrae. Disintegration has gone on, just as it would have done if the vertebrae had been left alone; although the splint has probably prevented as much curving as the child would have had if not operated on. The condition became painful, and the child was put in a wooden frame. The spine has now begun to straighten once more. I believe that while these operations are, in selected instances, wonderful advances, they will not relieve us from the necessity of protecting these vertebrae for a long period of time. I think, however, that perhaps it may be wise not to use protection in these cases for a while. Let us find out whether we change the pathologic process, so that instead of having a disease which ordinarily continues for two or three years and requires protection during this period, there is a normal condition secured by giving physiologic rest with bone-splints for six or eight weeks.



Figs. 3 and 4 (Case 10).—These two roentgenograms, taken in May, 1913, one year after operation, of a patient with no history of abscess formation previous to operation, illustrate what may result from this treatment as at present carried out.

If this is so, it is a wonderful advance, and let us know it; but, so far as my experience has gone in the case under my supervision, I do not believe that the operation does that. I think that we must continue the protection, as before.

DR. F. J. COTTON, Boston: For fourteen months past I have been doing some work on bone-grafts with Dr. Loder, my assistant, dealing particularly with the transplanting of the condyles of the femur, and the study of the ideal process of the life and growth of the bone-transplant under the best conditions.

The conditions include absolute asepsis, a sufficient serum supply and absolute fixation. About one hundred operations were performed, on seventy-five subjects, partly cats and partly rabbits. The same process occurs in transplants as in isolated bone fragments. The bone promptly degenerates; the bone corpuscles practically all disappear. The ideal process of repair depends on the life of the osteoblasts, which promptly form a perfectly definite layer of cells next the bone, and immediately begin to lay down new bone. The dead or degenerated trabecula is immediately clothed with new osteoid tissue; the old bone is necrotic in a sense, but not in the sense that it gives rise to any irritation whatever. On the other hand, if there are not sufficient osteal cells to form new bone, the result is a destructive process, with the appearance of osteoclastic giant-cells.

I do not think that, clinically, we can say much about what is going on in a histologic sense in any given case.

You can transplant cartilage without any chance of loss, if it is clean. If you have spongy bone, with a maximum of osteal cells and transplant a minimum of relatively nonviable trabeculae, you have a transplanting of active cells on a permanent scaffolding; and whenever these osteal cells get a fair chance they clothe the trabecula in that way. On the other hand, whenever they do not get a fair chance, a prompt giant-cell erosion takes place and the cells are absorbed. The appearance of the Haversian canals and a remodeling of the bone, which takes months in the human being, occurs later. That is not a part of the union of the graft with the host bone, but a remodeling to adjust the structures to strain. It is accomplished under Wolff's law, I think; and it is not fair to call it a part of the union of the graft, either histologically or clinically.

I am treating this from the experimental side. I believe that we shall find that a graft that is good for anything clinically will be a graft of spongy bone. I am not inclined to feel that the grafts made of dense bone will be a valuable source of new bone, although they live. I have used that sort of graft in a number of cases and cannot feel that these cases did any better than if a bone knitting-needle had been used in the same way. I started with a different notion; but I have become enthusiastic about the growth of spongy bone, and not about the other. Dr. Loder and I are not yet ready to make a full report. It seems, however, that we have gone far enough to demonstrate a certain law of growth under optimum conditions.

DR. D. B. PHEMISTER, Chicago: The influence of infection on the transplant has been spoken of. I have noticed that its presence does not always mean a failure of the operation. If the infection is severe and quite extensive, resulting in marked exudation or suppuration, the entire transplant will die and have to come out. But if it is milder and confined to a small portion (nearly always one end of the transplant), then that part only will undergo necrosis. The effect of the infection on that portion which "takes" frequently is that its periosteum is stimulated to excessive callus formation, producing an involucrum on the transplant just as we see it in the ordinary case of osteomyelitis. In such cases, if the portion which dies is not absorbed after some weeks or months, it can be removed.

DR. F. H. ALBEE, New York: Dr. Nutt is keen on drawing conclusions from history charts alone. He draws the conclusion in most of these cases that the patients were cured. He says that in one case there was scarcely any doubt that there was a cure, yet he never examined the patient before operation. He took charge of the hospital long after the operation had been performed. I think that it is wrong to draw such conclusions from history charts. Dr. Ely was there before I was and neither of us is expert on writing out histories of cases. We made short notes; but to take these and draw conclusions from them is not just. I talked over the cases with Dr. Nutt, but my word was entirely ignored as to the condition that had existed before operation.

The roentgenogram does not cover the complete area of the disease. Neither did the grafts, yet they held perfectly

the vertebrae in which they were situated. The deformity did not occur in the vertebrae held by the graft, but below that point. I have had other cases that came under the the care of other men. I have had two such cases that came under the care of one other man, in which the plaster jackets were immediately put on. Fortunately they came back to me. I took off the jackets and the patients have done well ever since. I do not think that the fact of Dr. Nutt's putting jackets on the patients is a trustworthy reason for considering that the operation is not a good one.

The operation on these vertebrae is not contrary to any orthopedic law, but in accordance with all orthopedic principles. We feel certain that we can fix the vertebrae and I doubt whether having patients with Pott's disease try to flex their spines will reveal whether three or four vertebrae are fixed together or not, as I have patients with very flexible spines in whom it would be very difficult.

Dr. Sayre points out that in many cases the deformity has progressed since the operation, in some cases to where it was before operation. I think some of this deformity is due to a lack of growth of the vertebral bodies on each side of the disease process. One picture shows markedly wedge-shaped vertebrae which apparently were not involved by the process in the diseased vertebrae, producing an atrophy and lack of growth of the vertebrae, as it does in the hip. We put patients with these wedge-shaped vertebrae on a frame so that the bodies came together again. Some of the deformity is due to lack of growth in the piece each side of the kyphosis.

It would be more conclusive, of course, had we another very excellent treatment to compare with this treatment. We might take, for instance, the special case treated in the hospital Dr. Nutt now has control of, in which the patient was put on a Bradford frame, the picture having been published showing the patient as cured. He was on a frame two years, then wore a plaster jacket two years. After going without the jacket for a year he had a relapse. So far as I know he is still wearing a brace made under my direction.

Judging from results obtained from ankylosing operations at the knee and other joints I believe we shall find that bone fixation has a marked effect on tuberculous disease of the joints.

DR. JOHN JOSEPH NUTT, New York: This patient of whom Dr. Albee spoke as having had the relapse, I did not see at the time, but I did see him on several occasions this winter. He is wearing a spinal support, looks well and attends school regularly.

I had the roentgenograms taken only a few days ago. I did not lay much stress on them, because they cannot assist much in determining whether the patients relapsed or did not relapse. I am not discussing the technic of the operation.

CHARCOT JOINTS AS AN INITIAL OR EARLY SYMPTOM IN TABES DORSALIS *

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The considerable number of cases observed by me in the last few years, in which a Charcot joint or a spontaneous fracture has called attention to an underlying tabes long before any ataxia was evident, has lent new interest to this heretofore rather unpromising class of cases. This interest has been intensified by the excellent results obtained from proper splinting and orthopedic treatment in both fractures and Charcot joints, which in many cases have enabled the patients to resume their work.

The material on which this paper is based consists of twenty-three cases of Charcot joints observed in the last few years in clinic and private practice. Of the twenty-three cases, twenty-one were in men and two in women. The ages of the patients when first seen ranged from 29 to 57. One patient was 29, eight were from 30 to 39, ten from 40 to 49 and three 50 or over; in one the age was not ascertained.

CAUSATION

Twelve patients definitely admitted luetic infection and an initial sore; four admitted gonorrhea but denied syphilis, and two denied both. In five the history of infection was not gone into. In most of the eleven cases without a syphilitic history, a positive diagnosis was extremely probable on clinical grounds, and it is my firm conviction that a luetic infection is the underlying cause in every case. It is interesting to note that in the twelve cases in which the date of the initial lesion is known, syphilis was acquired in every instance between the ages of 18 and 25. The shortest period noted between infection and a Charcot joint was seven years; more commonly it appeared from fifteen to twenty years or more after infection. The Wassermann reaction is not always positive, especially in those cases in which antisyphilitic treatment has been given. Stein's statement[1] that tabetic patients who have never been treated for syphilis always give a positive reaction, if confirmed, practically proves the syphilitic basis of all tabes.

Fig. 1.—Case 5; right Charcot knee.

A number of patients attribute the beginning of their symptoms to a definite trauma, even when there is no immediate fracture or joint lesion. Many more say that an injury which proved to be a fracture was soon followed by painless or nearly painless swelling of the involved or neighboring joint. Crush fractures of the outer or inner tibial tuberosity, often spontaneous, painless and unrecognized, are a frequent cause of a Charcot knee. Doubtless the tabetic joint with effusion and bone softening precedes in many instances, resulting later in a spontaneous crush fracture after joint involvement. Seven of the cases here reported suffered practically painless spontaneous fractures before the Charcot joints appeared. These and others have already been reported[2]

* Read in the Section on Orthopedic Surgery of the American Medical Association, at the Sixty-Fourth Annual Session, held at Minneapolis, June, 1913.

1. Stein, J. B.: Med. Rec. New York, Nov. 18, 1911.
2. Taylor, H. L.: Med. Rec. New York, Oct. 26, 1912; Post-Graduate, November, 1912.

in detail. In the twenty-three cases here considered there were three spontaneous fractures of the shaft of the left femur high up, one of the right patella, one above the right ankle, one of the neck of the right astragalus, seven of the internal tuberosity of the tibia (four right and three left) and one of the right external tuberosity; all were followed by a Charcot of the implicated joint. Nearly all tabetic fractures heal kindly with a large callus after the usual splinting, which should, however, be somewhat longer continued than in ordinary cases.

DIAGNOSIS

Spontaneous fractures and Charcot joints often occur in patients who have noticed no previous disturbance in gait, and have considered themselves in good health. A painless fracture or large persistent joint effusion with joint looseness, but with little pain or local disturbance in adults, should always lead to examination for the symptoms of tabes dorsalis, when Westphal's sign (absent knee-jerks), pupillary symptoms, and swaying with eyes shut (Romberg's sign) will usually be found, even when there is no ataxia.

In one instance a man aged 49 slipped and ruptured the left quadriceps tendon, which was sutured and united with good function. He had had a perforating ulcer under one great toe for six months, and still had it when seen a year later. Examination showed knee-jerks absent, fixed small pupils, Romberg's sign and vesical crises. He undoubtedly had tabes, which was the underlying cause of the quadriceps rupture as well as the ulcer. There was no subsequent Charcot joint.

The commonest of the early symptoms of tabes are shooting pains in the trunk or limbs, for which the usual treatment is that for rheumatism or neuralgia, or even for local troubles. I know of a man who had difficulty in walking in the dark, who was treated two years by a leading specialist for stomach trouble and visceral ptosis, when his symptoms were due to the gastric crises of tabes. Another man, a wealthy American who had four abdominal operations for supposed stomach and intestinal conditions, without benefit, was diagnosed at a glance by Oppenheim in Vienna as having tabes dorsalis. His pains had been due to this infection. In another case a tabetic joint was diagnosed as sarcoma in a London hospital, and the leg amputated. Adults, especially men complaining of persistent shooting pains, should be examined for tabes. Bladder symptoms and ophthalmoplegia are also occasionally early symptoms of tabes.

Examination of the affected parts by roentgenoscopy has been of great value. In the early stages many tabetic joints show little or no deviation from the normal picture. More advanced cases show roughened and fuzzy outlines and often the production of new bone about the affected parts, and some of the advanced cases, bone absorption at points of pressure, and bone atrophy. In several knee and foot cases roentgenoscopy revealed crush fractures when there had been no definite history of injury. Roentgenoscopy also revealed an ossification of the rectus muscle following a spontaneous fracture of the patella, and in several cases detached bits of bone, some of which could be palpated. In one patient with a right Charcot knee and foot, the left foot showed hypertrophy of the calcaneal tubercle and apparently an os trigonum. In one of the knee cases roentgenoscopy revealed a large bone-plaque behind the knee not complained of.

In the series of twenty-three cases of Charcot joints here studied, the incidence of the trouble was as given in the following tabulation:

	Right	Left	Total
Hip	2	1	3
Knee	11	6	17
Ankle	1	2	3
Tarsus	3	1	4
Ribs	..	..	1
Spine	..	..	1
			29

This includes those cases with more than one joint affected, one each with both hips; right hip and knee; ribs, right knee, ankle and tarsus, and both tarsi. It will be seen that in this group there are no arm cases, and that the knee cases outnumber all the other joints combined. As nearly as could be ascertained the Charcot joint appeared before any ataxic gait in ten, and after ataxia was noticed in eight; in five the precedence is uncertain. Most of the preataxic patients considered themselves in good health, and noticed nothing wrong until the appearance of the Charcot joint, with or without injury. Several, however, had had spontaneous fractures long before the Charcot joint. There is usually little or no pain connected with either a spontaneous tabetic fracture or a Charcot joint.

Fig. 2.—Case 5; right Charcot knee.

Fig. 3.—Case 9; right Charcot knee.

DEFORMITY

The Charcot joint is usually a large, loose joint filled with fluid, with the increased play, deformities and displacements due to a stretched capsule and eroded articulation. In some cases the swelling goes beyond the joint up and down the leg. In the three hip cases there was total disappearance of the head, and corresponding upward displacement with elevation of the trochanter,

and a flail joint with marked instability. At the knee, if the lesion is of many months' duration, there is usually abnormal lateral motion and hyperextension.

If there was a crush fracture of the internal tuberosity or bone absorption on the inner side of the knee there is an out-knee; if these changes have taken place on the outer side there will be an in-knee. Out-knee was noted five times, in-knee five times, and hyperextension seven times in the seventeen knees. In several cases the tibia was also displaced outward. At the ankle and tarsus there was usually enlargement with a tendency to valgus with or without fluctuation. In one case there was extreme tarsal valgus with great enlargement and involvement of the scaphoid, cuneiforms and base of first metatarsal. The enlargement was hard and without fluctuation (*pied tabétique* of Charcot).

In the spinal case there was a rounded lumbar kyphosis; the third and fourth lumbar vertebrae were involved. In several cases loose pieces of bone could be felt about the knee and seen in the roentgenogram. In one there was ossification of the rectus and a practically stiff knee, and in another motion was limited, owing to previous joint infection.

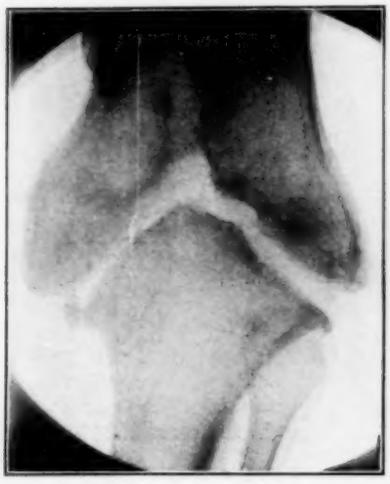

Fig. 4.—Case 10; right Charcot knee after excision.

Fig. 5.—Case 13; right Charcot knee.

TREATMENT

Mixed treatment is ineffectual in tabes. Salvarsan several times repeated sometimes gives great relief, especially to the shooting pains and sometimes to other symptoms. One patient in the series had had the knee excised three years before. There was no union, and the patient could not walk without a brace. When the joint changes have not progressed too far, great improvement results from immobilization with a caliper brace (Thomas knee-brace articulating with tube in heel of shoe). The swelling gradually recedes, the joint becomes much firmer, deformity is diminished or corrected, and in a number of instances the patient has gone back to work. In very early cases, before bone destruction, a jointed knee-brace will produce the same result. A jointed brace must also be used when the patient is not able to rise from a chair or balance himself in a stiff brace. In one instance a jointed brace applied elsewhere gave no relief, but when a stiff brace was substituted improvement quickly followed. In early or medium cases, proper orthopedic treatment gives good results.

REPORT OF CASES[3]

Case 1.—*Spontaneous Fracture of Left Femur; Right and Left Charcot Hip; Tabes.*—Man, aged 39, September, 1910.

Case 2.—*Tabes; Right Charcot Knee and Hip.*—Man, aged 48, February, 1910. Has had swollen and weak knee two years. Sudden pain in the right hip two months ago. Not much pain since. Knee reflexes absent; pin-point pupils; hip and knee loose; large swelling with fluctuation. R. A.[3] 29 inches; L. A. 31½ inches; trochanter 1½ inches high. Outer condyle can be felt to be eroded at knee. No pain; marked ataxia. Roentgenogram taken in December, 1909, shows beginning absorption top of femoral head. February roentgenogram shows complete disappearance of femoral head, and crushing down of external tibial tuberosity.

Case 3.—*Spontaneous Fracture Left Femur; Right Charcot Knee (Infected); Tabes.*—Man, aged 29, March, 1911.

Case 4.—*Tabes; Left Charcot Knee.*—Man, aged 49, April, 1913. Severe fall nine years ago; no trouble before. Since then trouble in walking; shooting pains in limbs and back until one year ago. Fell off engine, February, 1912. After that knee swelled, and he has not been able to work. One injection of salvarsan, May, 1912; no improvement. Pin-point pupils, absent knee-jerks, marked ataxia. Has large painless left knee, with in-knee, and loose body near patella. There is hyperextension at both knees. A stiff brace was made for the left knee, and the swelling disappeared in about a month. Roentgenograms showed bone changes about left knee and some loose pieces of bone. The patient is reported to have died the last of May, after a two weeks' illness.

Case 5.—*Tabes; Crush Internal Tibial Tuberosity; Right Charcot Knee.*—Man, aged 36, November, 1912. A fall on the ice in December, 1911, was followed by swelling of knee, which has persisted. Has a moderate out-knee (Fig. 1), but very little pain. Has ataxia, Romberg's sign, absent knee-reflexes and sluggish pupils. Has swelling lateral motion at knee, displacement of tibia outward, and some crepitus; flexion stopped short of a right angle; walks without support. Looks quite thin and miserable, but works as night clerk. Stiff brace (caliper) applied. After several months his knee was much improved. Roentgenogram (Fig. 2) shows irregular bone at sides of joint and a loose piece at inner side.

Case 6.—*Tabes; Right Charcot Knee.*—Man, aged 35, October, 1909. Ataxia in walking six months, swelling of knee a few weeks. Has ataxia; absent knee-jerks, pupillary symptoms, and large loose knee. The roentgenogram showed no great changes. After jointed brace had been worn for lateral support for four months, the swelling entirely disappeared, and the knee seemed to be practically restored to normal.

Case 7.—*Tabes; Left Charcot Knee.*—Woman, aged 44, May, 1912. Has had shooting pains in legs sixteen years or more, and incontinence of urine (dribbling) three or four years. Knee began to swell four months ago; was very large, not very painful; slight ataxia and Romberg's sign were present; knee-jerks absent; pin-point pupils; knee improved after application of a stiff brace. Roentgenogram shows fuzziness, lipping and overgrowth, outer side joint and under patella. Tibia is displaced outward.

Case 8.—*Spontaneous Fracture Left Femur (Twice); Right Charcot Knee; Tabes.*—Man, aged 50, November, 1910.

Case 9.—*Tabes; Right Charcot Knee.*—Man, aged 48, March, 1913. Pains in legs twenty years, and difficulty in walking

3. Cases 1, 3, 4, 11, 14 and 22 have already been reported under the title "Spontaneous Fracture as an Initial or Early Symptom of Tabes Dorsalis" in the New York State Journal of Medicine, October, 1912, and the Post-Graduate, November, 1912, where full histories may be found.

3. R. A. is the distance from the anterior superior iliac spine to the tip of the internal malleolus on the right side; the same distance on left side.

three years; right knee was swollen three years; now marked ataxia; fixed small pupils; absent knee-jerks; slight Romberg; in-knee, hyperextension, and lateral mobility at knee. Right knee 18½; left knee 15; knee not painful. Has worn jointed brace two years without benefit; knee now improving under stiff brace. Roentgenograms show extensive bone changes about condyles, crush of external tibial condyle and several loose fragments of bone. (Fig. 3.)

CASE 10.—*Tabes; Right Charcot Knee Excision; Non-Union.*—Man, aged 48, November, 1912. States that he injured

Fig. 6.—Case 21; right and left Charcot tarsus.

right knee crawling under locomotive four years ago. After this knee swelled and patient had trouble in walking; knee was not painful. Three years ago knee was excised, but bones did not unite. Since then he has had shooting pains in legs and has worn a stiff brace. Patient now has ataxic gait, Argyll Robertson pupils and absent knee-jerks. Knee may be hyperextended to 190 and flexed to 70. There is little swelling and no fluid. (Fig. 4.)

CASE 11.—*Spontaneous Fracture Left Internal Tuberosity of Tibia; Tabes.*—Man, aged 42, September, 1910.

CASE 12.—*Spontaneous Fracture Right Patella; Myositis Ossificans of Rectus Cruris; Tabes.*—Man, aged 37, July, 1909.

CASE 13.—*Right Charcot Knee; Tabes.*—Man, aged 38, May, 1908. Incontinence of urine at night for many years. Painless swelling in right knee began two years ago; no trouble with walking till last six months. Now little ataxia; Argyll Robertson pupils; absent knee-jerks; delayed sensation; no shooting pains; in-knee and swelling (Fig. 5).

CASE 14.—*Tabes; Fracture Left Humerus; Spontaneous Fracture Left Tibial Tuberositics.*—Man, aged 46, May, 1912.

CASE 15.—*Tabes; Right Charcot Knee.*—Woman, aged 44, April, 1910. Knee greatly enlarged over a year, painless; ataxia and other tabetic symptoms. Roentgenogram shows crush and displacement of internal tibial tuberosity.

CASE 16.—*Tabes; Right Charcot Knee.*—Man, aged 35, October, 1909. Ataxic gait six months; painless swelling in knee two months; some hyperextension. Has absent knee-jerks, pupillary symptoms and shooting pains. Roentgenogram shows no gross bone changes. Jointed knee-brace, with stop to prevent hyperextension applied. Swelling entirely disappeared in four months.

CASE 17.—*Left Charcot Knee; Tabes.*—Man, aged 34, May, 1912. No injury; no ataxic gait. Knee began to swell seven months ago; slight pain in beginning, none now. Knee-jerks absent; slight Romberg; Argyll Robertson pupils; no ataxia in arms or legs; no lightning pains. Large, loose knee, with effusion.

CASE 18.—*Charcot Ribs; Right Charcot Ankle, Tarsus, and Knee; Tabes. Improvement after three injections of salvarsan.* Man, aged 50, October, 1912. Bladder symptoms (dribbling), girdle pains and shooting pains in legs appeared about ten years ago, also localized swellings on ribs, appearing from time to time and lasting from four to eight weeks. One is present now on right side and one has just gone on left. Right knee began to swell three years ago, and right ankle six years ago. Did not have much trouble with gait until knee began to swell. Girdle pains disappeared six years ago. Fixed pin-point pupils; absent knee-jerks; Romberg and marked ataxia. After three injections of salvarsan two years ago, ulcer which had been present on ball of small toe six years healed in one week and has not recurred; has had no pains in legs or dribbling since; general health and gait improved, and swelling of knee diminished. Weakness in right knee and ankle have progressed and for the last three months has been able to walk only with the aid of crutches. Roentgenoscopy reveals some hyperostosis under patella and back of joint; disintegration at right astragaloscaphoid; also hypertrophy of left calcaneal tubercle and left os trigonum.

CASE 19.—*Fracture Above Ankle; Charcot Ankle; Tabes.*—Man, aged 43, February, 1909. Fracture above left ankle nearly three years ago; two years ago ankle began to swell with some pain. Absent knee-jerks; Argyll Robertson pupils; no ataxia; walks well with eyes shut; has cystitis. Much bony enlargement about ankle; moderate pain in walking; good ankle motion.

CASE 20.—*Left Charcot Ankle; Tabes.*—Man, aged 33, March, 1911. Treated four years ago for gastric pains; knee-jerks absent; right pupil fixed and dilated, left sluggish; slight Romberg; moderate ataxia of gait, slight of arms. Left ankle enlarged.

CASE 21.—*Right and Left Charcot Tarsus (Pied Tabétique.)*—Man, aged 57, December, 1912. Both feet in marked tarsal valgus, with much firm enlargement of scaphocuneiform region; no pain; no fluctuation. Typical symptoms of tabes, but ataxia absent (Fig. 6).

Fig. 7.—Left Charcot knee extreme hyperextension; no history.

CASE 22.—*Spontaneous Fracture of Right Astragalus; Charcot Astragaloscaphoid Joint; Tabes.*—Man, aged 30, February, 1912.

CASE 23.—*Charcot Spine; Tabes.*—Man, aged 47, March, 1913. Fell 6 feet, May, 1910. Next day was unable to walk, but could walk with difficulty five days later. Pain in lower back and about left thigh since. Has had many kinds of treatment since, but has grown steadily worse. Now walks and stands with difficulty; marked kyphosis in lumbar region; no ataxia; no Romberg; sluggish left pupil; right knee-jerk absent, left present; antiluetic treatment negative;

Wassermann negative. As the patient was growing steadily worse, a bone grafting was advised, and a transplant from the tibia was implanted into the three lower lumbar vertebrae and sacrum. The patient grew steadily worse and died six days later. Roentenogram showed left half of body of third lumbar and right half of fourth nearly destroyed; considerable displacement of third vertebrae to right.

CONCLUSIONS

One seems warranted in concluding from this series of cases that:

1. Charcot joints and spontaneous fractures are often initial or early symptoms of tabes dorsalis.
2. They often precede the ataxic gait, and are of diagnostic importance in calling attention to the underlying tabes.
3. Charcot joints are frequently of traumatic origin and often follow fractures, and lesser injuries.
4. The results of orthopedic treatment in early or moderately advanced cases of Charcot joint are extremely satisfactory.
5. Orthopedic treatment by protective splinting should also be used in the loose joints of tabes due to hypotonus before the appearance of swelling and effusion.
6. As ataxia is frequently one of the later symptoms to appear, the term "locomotor ataxia" to designate the affection is misleading and should be discarded. "Tabes dorsalis" should be used in its stead.

I wish to thank my colleagues at the Post-Graduate Hospital and the Hospital for the Ruptured and Crippled for their kindness in referring cases and valuable aid in their study.

128 West Fifty-Eighth Street.

ABSTRACT OF DISCUSSION

DR. J. D. GRIFFITH, Kansas City, Mo.: I had a case of Charcot's disease of the hip-joint in which there was complete absorption of the neck itself. The patient was a Chinaman, 67 years old, with a decidedly luetic history. He had never had a bad symptom or any great difficulty in getting around until he had an accident in May, 1913. He was walking with a cane and suddenly found, without any premonitory symptoms, that the leg gave way in stepping down the stairs. The patient had no pain, but the leg was greatly swollen and edematous. The roentgenogram showed that the head of the femur was practically destroyed, only a small piece being left in the acetabulum. When the man came to the hospital, there was an effusion about the joint, as well as quite a formation of new tissue, with a shortening of the leg of about 2 inches. One peculiarity about the case was that there was no loss in the power of lifting the leg and placing it in different positions, and the ordinary tests for fracture were negative. There was nothing to indicate that there was a complete absorption of the neck of the femur. We kept him in bed for a few days and had an ordinary Thomas hip-splint made for him—one with a fixed shoe; we adjusted that after he had recovered sufficiently. He is walking around on crutches now.

A second case is that of a man who is stout, strong and able-bodied, with a negative history. He had had no trouble, except that he was noticeably commencing to walk with one hip rather prominent, and was going slightly sideways. He weighed over 150 pounds. He had no pain, but thought that he had hip-joint trouble. The roentgenogram showed nothing the matter with the joint, but a little trouble higher up in the spine. There was no evidence of pain on examination and not a single spinal symptom. He gave no history of lues.

DR. F. J. COTTON, Boston: I should like to agree with all that Dr. Taylor has said. I see a great many of these cases under different circumstances in a general surgical clinic, and they are usually those that my colleagues let go by. They are not the bad instances of Charcot joints, and have previously been treated with more or less Christian Science methods. They are unrecognized cases. I am familiar with the kind of cases that Dr. Taylor mentioned, but I should like to mention the subclass—cases that are generally unrecognized. They are types of low tabes. You do not get the Argyll Robertson pupil in them, but slightly sluggish light-reflexes and absent knee-jerks occur almost always. It is these "low" cases in which we often have for many years serious bladder trouble without any ataxia and without any development of other symptoms. All the cases of this kind that I have seen have existed for many years; not one has been ataxic or shown a clean-cut picture of tabes dorsalis. The patients come in for unexplained joint injuries that are supposed to be traumatic. They are sometimes recognized after the failure of some method of treatment.

You really have a clean-cut picture. There is a painless joint, more or less thickened, without effusion, with no joint spasm, with abnormal mobility. Sometimes there is the lancinating pain of tabes; sometimes this is absent.

Sometimes there is an appearance of erosion of the cartilage, a smudged picture of the bone outlines and a characteristic exhibition of formless bony matter in the articular capsule.

If you cut into these joints, you find a pathologic picture of a thickened capsule with bone-plaques scattered around. All Dr. Taylor's cases, except the one in which osteotomy was done, showed this type. I have felt no hesitation in making the diagnosis, and then sending the patients to the neurologist for confirmation. Sometimes the nerve specialists said that there was no tabes; but when I insisted that there was, they finally made the diagnosis. These conditions occur more frequently in women than in men, and with no definite syphilitic history; but, as we believe, with syphilis lying back of it.

The cases are important because the orthopedic surgeon can do something good by means of apparatus, although other things do not do the slightest good. The patients often come to the hospital for operation.

DR. GILBERT BAILEY, Oak Park, Ill.: I wish to emphasize the painless character of many of these joints. I recall the case of a man, a carpenter, who was admitted to the Cook County Hospital. He had been doing some work on a door and, while attempting to drive a nail through the door, drove it into his shin. It took the force of two men to pull him away. Before the accident he had considered himself perfectly well. Three months later he began to notice a swelling at the site of the injury and he sustained a spontaneous fracture. Several months later a Charcot joint developed at the ankle. The fact that the Charcot joint developed without the usual tabetic pains, and after the trophic disturbance seemed interesting.

DR. JOHN RIDLON, Chicago: I have seen three cases in which the first diagnosis of tabes was the joint condition as shown by the roentgenogram. Its existence was not suspected until then. Therefore, in all obscure joint cases in which the diagnosis is not clear, a tabetic joint must be seriously considered. Another point that must be remembered is that tabetic joints must not be operated on. The patient is positively harmed by operation.

DR. HENRY LING TAYLOR, New York: This discussion emphasizes some points that I should have emphasized more in my paper. My experience agrees with that of Dr. Cotton: nearly all these cases are diagnosed for the first time in an orthopedic clinic or in the private office of an orthopedic surgeon. This series of cases also includes a great many cases of tabes in which some of the classical symptoms are absent. I refer all doubtful cases to a neurologist for detailed study.

Legal Decisions in Medical and Surgical Cases.—There are some things which it is not wisdom to attempt, and an explanation of the way in which decisions are arrived at in courts of justice where medical and surgical matters are concerned is one of them.—C. Mansell Moullin, in (London) *Clinical Journal.*

THE RECOGNITION OF EARLY CHANGES IN THE LARYNX IN TUBERCULOSIS *

W. E. CASSELBERRY, M.D.

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CHICAGO

Not differing from tuberculosis elsewhere, the first definite change provoked by the bacillus in the larynx is an infiltration of the mucosa and submucosa by a diffusion of small, round, mononuclear cells, interspersed among which are collections of epithelioid and lymphoid cells in the form of tubercles, which are deposited, in large part, in the connective tissue beneath the epithelial and structureless layers, and hence near enough to the surface to change its aspect in form and feature. Accordingly, the recognition of early changes in tuberculosis of the larynx will be promoted by keeping in mind:

First, the disposition of tubercles and tuberculous nodules to assume a globular form, which gives the surface of the infiltration, also termed hyperplasia, a mammillated aspect.

Secondly, their disposition to excite verrucous and granulomatous formations which, though ordinarily delayed till the stage of ulceration, may make an earlier appearance and give the surface a papillomatous aspect.

Thirdly, their disposition to excite serous exudation which may give the surface, not the proportions of gross edema familiar at a later stage as "turban-shaped" and "pyriform," but an aspect of incipient edema which, by a touch of pallid color and somewhat tense consistency, imparts just the "atmosphere" necessary to lend distinction to the composition.

Moreover, although by no means exclusive, tuberculosis favors certain sites in the larynx, each of which tends to stamp the lesion, whether mammillated hyperplasia, verrucous formation or incipient edema, with its own local functional or anatomical mark and, though the stamp be that of location rather than of lesion, its impress on a tuberculous matrix is apt to leave a mark distinctive of the lesion itself. Especially is this true at a site which, lacking a definite name, is herein designated, together with a description of its location and function, as the vocal angle (Fig. 1).

Though a feature of the larynx, the vocal angle is not a separate anatomical part, but a line of junction of several parts, the terminals of which converge at an angle. In length, the angle starts at the base of the vocal process as represented by a small three-cornered area beneath the terminal ridge of the cord, and, mounting with a posterolateral trend, it marks the line at which the superficial structures of the true cord, the false cord and the interarytenoid fold merge into one. The function of the vocal angle is somewhat like that of a hinge, its overlying mucosa folding in and out with every movement to and fro of the vocal cord in speaking, and, though under normal conditions it withstands unharmed this perpetual creasing, a tuberculous infiltration will cause it to retain, in the form of a furrow or fissure, the impress made on it at the folding line.

The mammillated hyperplasia fundamental to the furrow is prone to make its first appearance and the furrow to take its start at the lower extremity of the vocal angle in or near the small three-cornered whitish surface of the base of the vocal process. Although this is a point of greatest significance in the early recognition of tuberculous changes in the larynx, it is doubtless often overlooked because it lies beneath the ridge of the cord near its terminus and does not flash into full view in the mirror until the moment of deep inspiration with widely separated cords which naturally follows a prolonged vowel sound. In the half-opened position of the cords, during ordinary breathing, it is only partly visible, and in the closed position not at all visible. The infiltration, however, is rarely limited to this one spot and may make its first appearance anywhere along the vocal angle. Also, instead of at the base, it may first be perceived clustered around the apex of the vocal process, that salient point in the edge of the cord often erroneously referred to as if it were the whole vocal process, although in fact only its apex. The furrow, in the beginning, is simply the folding line or corner of the angle, given depth by thickening of its borders; but, as the infiltration augments, especially near the terminus of the false cord, the furrow becomes more pronounced and sooner or later it becomes a fissure, perhaps exciting granulomatous formation as it cuts into the rim of the larynx at the arytenoid.

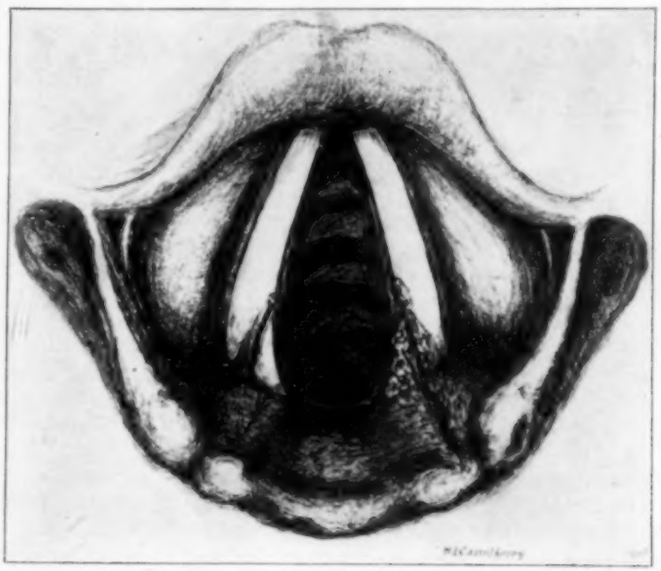

Fig. 1.—Mammillated tuberculous hyperplasia with a furrow at the vocal angle, which is one of the earliest and most distinctive of the initial lesions.

I consider, therefore, that hyperplasia of a mammillated or other typical aspect commencing at or near the subglottic portion of the base of the vocal process, and marked gradually by a furrow in the vocal angle, is not only one of the earliest, but also the most distinctive of all the initial changes wrought by tuberculosis in the larynx (Fig. 2). So soon may it appear that, in a semiquiescent state, either alone or following interarytenoid hyperplasia, it may precede by months or years any more active developments; for it is now realized that, like its parent lesion in the lung, a tuberculous infiltration in the larynx may remain indefinitely in what is the equivalent of an early stage of development, perhaps in the end to flare up or perhaps, as I have elsewhere shown,[1] to recede, in the proportion, considering all types, of 20 per cent. So distinctive is it that, by way of comparison, it may be said to indicate tuberculosis at a period before interarytenoid hyper-

* Read before the American Climatological Association at the Congress of American Physicians and Surgeons, May 8, 1913.

1. Casselberry, W. E.: THE JOURNAL A. M. A., Aug. 7, 1909, p. 436.

plasia, if alone, will have passed the stage of similarity to non-tuberculous infiltrations. Even the broad-based, centrally cleft interarytenoid hyperplasia, long regarded as characteristic of tuberculosis, before reaching its typical development, must pass through indistinguishable stages; for simple inflammatory hyperplasia having a crinkled, rugous and moderately elevated aspect, indistinguishable when limited to the interarytenoid fold from the early tuberculous type, is not uncommon especially in connection with nasal accessory-sinus suppuration, retention tonsillitis, asthmatic bronchitis, tobacco pharyngitis, etc., and pulmonary patients, no less than others, are liable to these affections. Therefore, not even in the presence of pulmonary turberculosis itself will a moderate degree of interarytenoid hyperplasia, unsupported by infiltration at any other site, advance the diagnosis beyond the question whether it is tuberculous laryngitis or simple laryngitis in a tuberculous subject, excepting that any persistent hyperplasia in the larynx which supervenes in rapidly progressive pulmonary tuberculosis of the non-resistant type obviously requires no additional confirmation of its tuberculous nature.

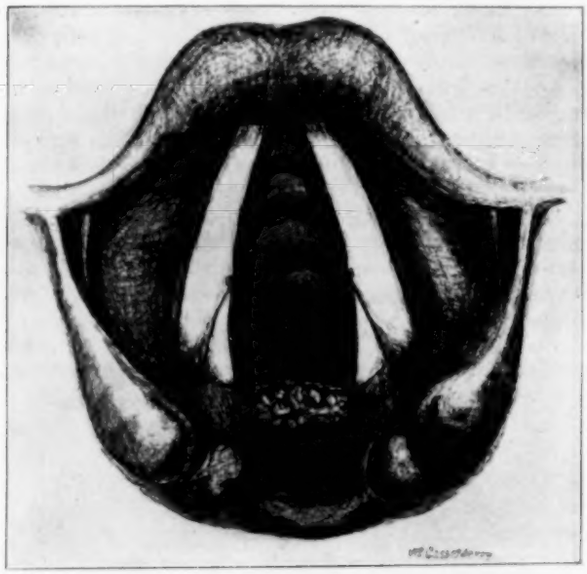

Fig. 2.—Interarytenoid hyperplasia which, existing alone, is of little diagnostic significance at an early stage as it is commonly simulated by non-tuberculous hyperplasia in the same situation.

It follows that, in the problem of distinguishing between tuberculous laryngitis and simple laryngitis in a tuberculous subject, most of the cases concerned are of hopefully resistant type, usually evidenced, despite a definite deposit in the lungs, by a fair state of nutrition, moderate pulse-rate and but few bacilli, the interarytenoid hyperplasia in question being of moderate and slow development. St. Clair Thompson refers to this type of case as lupoid tuberculosis, but it is quite different, eventually running the course of laryngopulmonary tuberculosis and not that of lupus. The prognosis, however, is hopeful and the actual results justify every effort at any sacrifice to invoke the methods most likely to secure its arrest; so that any loss of opportunity through lack of early recognition of that which later on is liable to become the major life-threatening factor in the case does an irreparable injustice to the sufferer. At the same time, any pronouncement of tuberculous laryngitis, based in error on a non-tuberculous interarytenoid hyperplasia, is liable to work a corresponding injustice to him who, though a tuberculous subject, has but a simple chronic laryngitis; for the sacrifice of life's ambitions and business interests likely to be involved in the treatment and mode of life under the idea of laryngeal tuberculosis is far greater than in pulmonary tuberculosis alone. As a single instance, the item of rest may be mentioned, which should include not only rest for body and mind, but also rest for the voice and rest from the exactions of business. If, however, an infiltration at the vocal process with a furrow in the vocal angle be recognized in addition to the questionable interarytenoid hyperplasia, the problem is then safely solved, the answer being laryngopulmonary tuberculosis (Fig. 3).

It is somewhat later that the sign at the vocal angle reaches its most characteristic bilateral development, when, together with interarytenoid hyperplasia, it gives to the semicircular form of the posterior commissure a square or box-like effect, a veritable "squaring" of the semicircle. It forms a striking picture (Fig. 4) believed to be sufficiently characteristic of tuberculosis of the larynx to justify a tentative diagnosis even in the supposed absence of pulmonary disease which, on thorough search, will then be brought to light. That the prognosis still is hopeful is illustrated, first, in Figure 4, drawn in 1901 from the case of J. W. D. in which the mammillated hyperplasia of the interarytenoid fold and of both vocal angles with a furrow at the right and a fissure at the left and with granulomas forming about the fissure were absolutely characteristic of tuberculosis; and next, in Figure 5, drawn seven years afterward from the same case, which shows that full recovery has ensued with respect to the larynx,

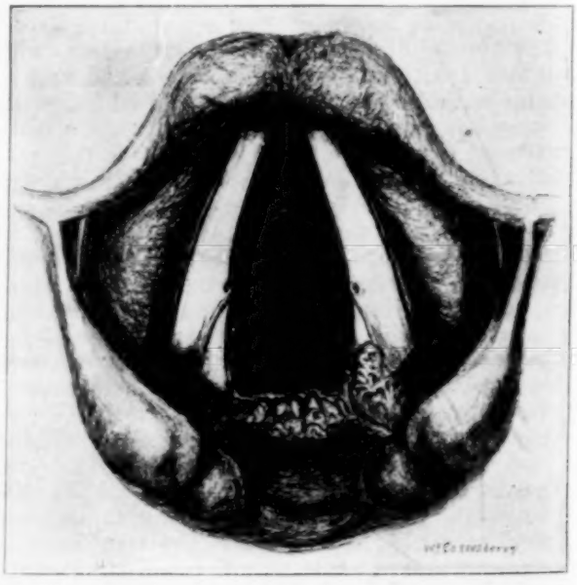

Fig. 3.—Interarytenoid tuberculous hyperplasia which is given diagnostic significance by the accompanying hyperplasia and furrow at the vocal angle.

a smooth scar, the result, in part, of intralaryngeal surgical treatment, being the only reminder of its former condition.

It is not to be inferred that the sign at the vocal angle has heretofore escaped observation, for, although no mention is made of a furrow or fissure, it is discernible in various illustrations, including Nos. 3, 9 and 12

in the series of realistic sketches by C. L. Minor,[2] who also describes as "very suggestive the early appearance of thickening at the posterior insertion of the cord and a small white triangular ulcer" which he locates at evidently the same spot herein described as a three-cornered surface at the lower extremity of the vocal angle beneath the terminus of the cordal ridge.

The initial lesions at other sites, although not of frequent occurrence individually, are too numerous in the aggregate, to permit of more than passing notice limited to those which may serve incidentally to accentuate the "motif" running through the theme; so that the diagnosis of the earliest definite infiltration will be promoted, while the pathologic trend is kept in mind, by an ability to recognize it—whether mammillated hyperplasia, verrucous formation or incipient edema—in the guise of the varying stamp placed on it at different local sites. Take, for instance, lesions in the fibrous portion of the vocal cord whose firm tissue-bundles by affording an extra lateral resistance encourage the "fusiform" style of development most characteristic of hyperplasia of the cord; the fusiform, then, if abbreviated and in multiple, becomes an "undulating or wavelike" infiltration of the cord; if it is elongated and in duplicate, it constitutes a type of "double cord." Again, verrucous formations and nodules in pairs, like simple warts and singers' nodes, seem to be led into these forms of development by vocal attrition of the cords.

The epiglottis, although rarely the first feature to manifest infection, provides the most favorable condition for exhibition to the naked eye of individual tubercles which, of course, represent, in diminutive, the elements of mammillated hyperplasia. Half of the epiglottis, in a case now in mind, was marked by many grayish-yellow, pin-point, slightly raised granules scattered beneath a translucent, somewhat edematous surface. I should not omit to mention, in connection with the mention of this unpromising initial condition, that the patient made an excellent recovery with respect to the larynx and experienced a practical arrest of the condition with respect to the lungs, and now, fourteen years afterward, is in an efficient state of health.

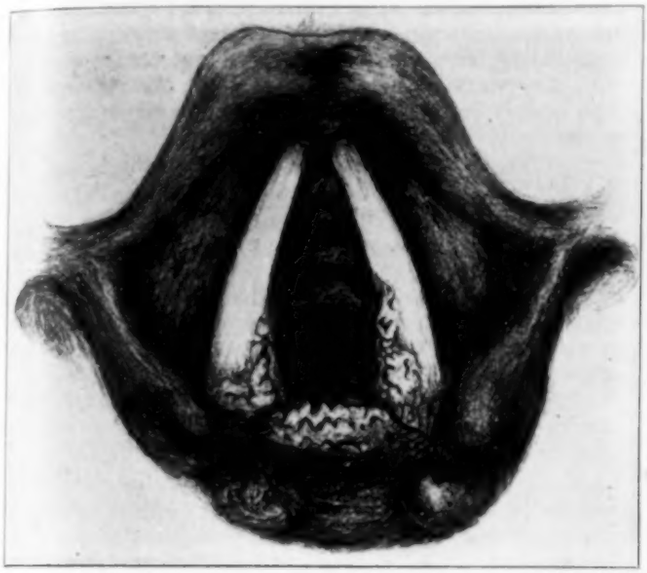

Fig. 4.—"Squaring of the semicircle" in the Case of J. W. D. The mammillated hyperplasia of the interarytenoid fold and both vocal angles with a fissure and granulomas at the right and a furrow at the left present an aspect absolutely characteristic of tuberculosis of the larynx. Recovery, however, ensued as seen in Figure 5.

The arytenoid in exceptional cases may provide the first indication of a laryngeal complication by suddenly becoming edematous. This condition, when pronounced, is an evil omen indicative of the non-resistant type of the disease and characterized with respect to the laryngeal involvement by speedy development, persistent progress and rapidly fatal termination. This is the type previously mentioned as obviously requiring no additional confirmation of the tuberculous nature of any infiltration which might occur in the larynx. Having stated in connection with its opposite, the hopeful variety, that the results of treatment justify any sacrifice, it is incumbent now to state that this non-resistant type should be carefully differentiated, no serious sacrifice being justified by the results of treatment; instead, these patients should be guarded from the privation and distress which surely follow in the wake of an indiscriminate exposure to the elements and to the hardships of travel in distant climes. Any attempt, likewise, at local surgery is but to court opprobrium and invite disaster, whereas, in the hopefully resistant type, with lesions not too diffused and reasonably accessible, intralaryngeal surgical measures have proved helpful in mitigating suffering, prolonging life and promoting arrest.

Can a diagnosis then always be made from the laryngeal image alone? No, not always; for the infiltration may not have developed sufficiently, and it cannot be said that even a furrow at the vocal angle may not in rare instance be simulated by the hyperplasia of syphilis, pachydermia, etc., so that every additional test must be applied in order to remove doubt or to make assurance doubly sure. Even then it must rest on the laryngeal image to disclose that accentuation of the infiltration which constitutes a positive local reaction from a systemic tuberculin test which, following the exclusion of syphilis by the Wassermann test, should dispel any remaining doubt.

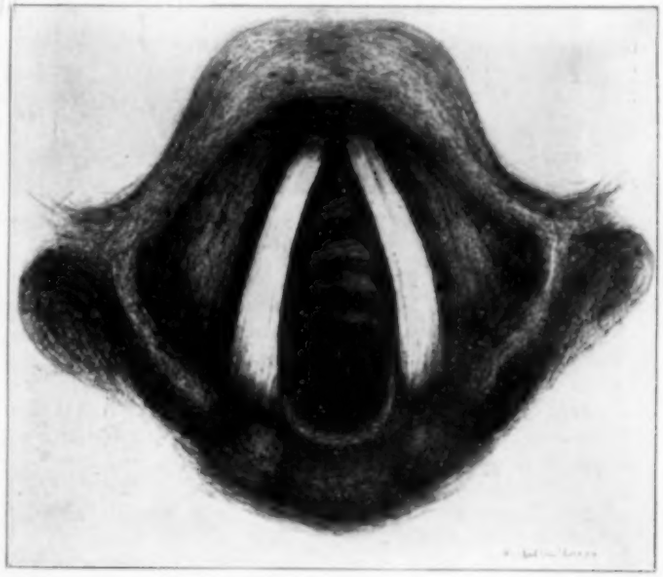

Fig. 5.—Case of J. W. D., seven years afterward, showing the larynx fully recovered from tuberculosis, with only a smooth scar the result of treatment, in part, by surgical measures.

15 East Washington Street.

2. Minor, C. L.: The Diagnosis and Treatment of the Earlier Changes in the Larynx in Pulmonary Tuberculosis, THE JOURNAL A. M. A., Nov. 19, 1910, p. 1806.

AUTOPLASTIC OPERATIONS TO COVER STUMP SUBSEQUENT TO AMPUTATION OF LEG OR THIGH

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Chief of Surgical Clinic, Colon Hospital
CRISTOBAL, C. Z.

Probably every surgeon who has done much accident work has occasionally sacrificed a useful leg stump, a knee or vital length of thigh—vital as far as function goes—because of insufficient tissue available for flaps, or has had to reamputate a leg or thigh to secure a proper covering for the bone, and, by the additional shortening, has seriously impaired the subsequent usefulness of the stump.

By bearing in mind always the fact that in the opposite leg or thigh we have a surplus of tissue which may be borrowed in case of need to fill almost any deficiency, we shall be following a policy of conservation of human tissue which will minimize the disabilities arising from accident or disease affecting the lower extremities.

For instance, in traumatic amputation in the upper third of the leg where, in order to perform a satisfactory amputation, the knee-joint must be sacrificed, we shall

Transplant in Case 1, and area on the left thigh from which it was taken.

simply clean and trim off the lacerated tissue and as much of the bone as can be spared without interfering with function, dress the wound and allow it to granulate. When the end presents a clean granulating appearance, we borrow enough tissue from the opposite thigh or leg to supply the defect, and the patient retains a functionating knee-joint and all the benefits to be derived from it in wearing an artificial leg.

The same procedure may be followed in amputations of the thigh when in traumatic cases we are able to preserve a functional length of stump by trimming off the lacerated tissue, sawing the bone off flush with the end of the stump, and, at a later date, borrowing a mass of tissue from the opposite thigh to cover the end of the stump.

Likewise in cases in which a reamputation would usually be performed for tender or thinly-covered bone, the tender or attenuated skin may be cut away and the defect covered by means of a flap from the opposite thigh, preserving the entire length of stump and relieving the condition.

So also in severe septic cases requiring amputation, to keep in mind the possibility of supplying subsequently soft parts to fill in defects makes us refrain from cutting off much that heretofore has appeared valueless.

From whatever cause the condition may arise, the indications for the operation appear not infrequently.

TECHNIC

1. The area to be covered should present a clean, granulating surface—all crusts, thickened loose areas of skin should be removed and the whole area well coated with iodin. Then, with a sharp knife, the denuded area should be excised, cutting through the normal skin all the way round and removing a sufficient amount over the granulating area to insure a level cut surface. The skin margin is freed and elevated all the way round. The end is packed temporarily with gauze out of hot saline solution to check henforrhage.

2. A flap is cut on the opposite leg or thigh, including skin, fascia and muscular tissue, with an attachment containing sufficient blood-supply to insure its viability until such time as it establishes circulation through the prepared area.

3. By this time if oozing has ceased on the stump, the flap should be brought over the end of the stump and sutured to three sides of the skin margin, care being taken that there is good apposition without tension.

The legs are then firmly fixed together so that there can be no movement to disturb the flap, first by means of silkworm-gut sutures and, secondly, by adhesive strips applied some distance from the site of the operation. The limbs are put up in a voluminous dressing for about sixteen days, when it is usually safe to sever the flap from the parent leg or thigh, and complete the operation by suturing the cut edge to the remaining skin margin on the stump. The area from which the flap has been taken is skin grafted.

Two characteristic cases are reported, one a leg and the other a thigh amputation, performed nearly five years ago while I was in Ancon Hospital.

Case 1.—West Indian negro, aged 36, suffering from typhoid fever, was struck by a train, July 2, 1908, and was brought to Ancon Hospital with a compound depressed skull fracture and traumatic amputation of right leg at junction of middle and upper thirds. The depressed fragments of skull were removed and the leg hastily amputated in upper third. The flaps were short and included lacerated tissue. After several days the attempt proved unsuccessful, the flaps parted and allowed the end of the tibia to protrude. The end of the stump was dressed until it presented a clean, granulating surface about 3 by 4 inches.

To shorten the bone sufficiently to allow the flap to meet without tension would have necessitated a sacrifice of leg stump and all it means in the wearing of an artificial leg.

Sept. 9, 1908, the patient was again anesthetized, the granulating end of the stump freshened, and the skin edges freed. Then a flap was laid down beginning on the inner side of the left thigh at about the junction of the middle and lower thirds, including skin, fascia and a small amount of muscular tissue, and extending to the level of the knee-joint. The flap, before it was cut, was about 5½ inches square. The attachment was nearly over the knee-joint.

The legs were placed together and the flap brought around the end of the stump and sutured to the skin margin along three sides, the fourth or internal side of the flap corresponding to the base of the flap. The base of the flap being higher than the denuded area, a good apposition was secured over the entire end of the stump. The legs and thighs were firmly fixed together by means of sutures and adhesive strips for a period of sixteen days, when the patient was again etherized and the flap severed from the parent leg, approximated and sutured to the remaining skin edge of the stump. The denuded area was skin grafted.

The result was all that could be hoped for. The bone was sufficiently covered by a tough, insensitive fleshy pad, which, by contraction, had markedly lessened the area of the transplant and thickened it to 2 or 3 cm. It has successfully withstood the wear and tear of an artificial leg for nearly five years.

Lately, the artificial leg has become so loose that the patient stuffed the lower part with rags, paper, etc., and allowed the end of the stump, that is, the autoplastic pad, to take the entire body-weight. This caused a slight abrasion which promptly healed when the irritation was stopped.

CASE 2.—Traumatic amputation through mid-thigh, a patient almost in a moribund condition from shock and hemorrhage. Almost no operative measures except cleaning and trimming of lacerations could be performed on account of the patient's condition. The patient rallied and the stump was dressed until the end presented a clean, granulating surface of about 5 inches in diameter. He was anesthetized and a thick flap of skin, fascia and small amount of muscular tissue were cut from the opposite thigh, beginning nearly in the gluteal fold and extending down the antero-internal and postero-internal sides for a distance of about 6 inches, and having about the same width. The base was about midthigh. After freshening of the granulating surface and freeing of the skin margins on the stump, the flap was drawn around the end of the stump and the edges sutured to the skin margin on three sides. The thighs were firmly fixed together by means of sutures, adhesive strips and bandages. As there was more or less oozing from such an extended, denuded surface, the wound was dressed at the end of one week. On the sixteenth day the flap was severed from the parent thigh and approximated to the remaining skin margin on the stump. This furnished the patient with an ideal stump, well-covered with tissue, not painful and still retaining sufficient length to move an artificial leg.

The operation is indicated in those cases in which the requisite shortening to procure a good stump will interfere with its usefulness, and the patient's general condition is such that he can stand the operation plus about three weeks in bed. There is some pain associated with the fixed position the patients are forced to take, but this is not very severe.

The operation is contra-indicated in those cases in which a reamputation does not seriously interfere with the usefulness of the limb, because it subjects the patient to an added operation or two and prolongs the stay in bed by a considerable time with the attending dangers.

THE SIGNIFICANCE OF GASTRIC ULCER WITH RESPECT TO GASTRIC CANCER

A STUDY OF FIVE HUNDRED AND SIXTY-SIX CONSECUTIVE OPERATIVELY AND PATHOLOGICALLY DEMONSTRATED CASES OF CANCER OF THE STOMACH *

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During the past decade there has been a growing conviction among clinical and laboratory workers that there exists an increasing number of cases clinically admitting a diagnosis only of chronic gastric ulcer which do not pursue an orthodox course of chronicity, but often rapidly assume aspects of malignant disease. If such cases come to laparotomy or necropsy, the surgeon or pathologist demonstrates cancer.

Conversely, surgically and pathologically proved cases of gastric cancer frequently reveal an early clinical history, which at any stage prior to the terminal period of evident malignancy might logically be interpreted clinically as chronic gastric ulcer.

The subject has etiologic, diagnostic and prognostic aspects. Inasmuch as this group of cases satisfies the diagnostic requirements for gastric ulcer and this process of whatever nature it may be later assumes characteristics that we associate with malignancy, and as we have no known medical cure for gastric neoplasms, it would appear imperative to determine how frequently this type of affection exists, in what manner, if any, it manifests itself, the possibilities of its recognition and the indicated treatment when demonstrated. This study has been made in an endeavor to secure information in these directions.

An analysis has been made of 566 operatively and pathologically demonstrated cases of gastric cancer from the Mayo Clinic.

CLINICAL CONSIDERATION

Significance of History: Sex.—In the 566 cases, there were 436 males and 130 females, or 3.1 males to each female. It will be recalled that this is almost the identical sex ratio existing in non-malignant chronic gastric ulcer.[1]

Age.—The youngest patient in the series was 20 years of age; there were twenty-six patients aged over 70. More than three-fourths of the cases came between the ages of 40 and 70 years. A comparative study of 134 cases of non-malignant chronic gastric ulcers shows that rather more than one-half were in the 40 to 70-year period.

Etiologic Factors.—A history of trauma was obtained in 3.4 per cent. of the cases. In 2.9 per cent. the traumatism occurred in the early history of the affection, and it was noted frequently to cause or precipitate symptoms. There were three instances in which husband and wife became affected with cancer within a few months of each other. A family or blood-relationship history was obtainable in 9.2 per cent., and a history of tuberculosis in 1.2 per cent.

Previous Disorders of Digestion (The "Precancerous" History).—More than ten years ago Graham[2] called attention to the significance of the early clinical history in patients presenting themselves in his service for evident gastric cancer. He stated that more than 47 per cent. of his operatively demonstrated cases of cancer had had previous histories which strongly suggested that the cancer had followed a chronic gastric ulcer, existing variously from three to thirty-seven years. Graham also emphasized the fact that nearly 40 per cent. of his cases of cancer were not associated with the previous so-called "ulcer history," but that in this group of cases cancer developed in stomachs which previously functionated normally.

The value of early history as indicating that succeeding cancer of the stomach has its origin in such hypothetic ulcer has been justly questioned. The weakness of the argument appears to be at least threefold: (1) the clinical variation in an ulcer symptom-complex, (2) the indefinite ideas existing as to the time element in the development of "chronic" ulcer and of cancer, and (3) the difficulties in actually proving whether or not a process which is later shown to be malignant was ever anything else. I shall consider these points seriatim.

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* Read before the American Gastro-Enterological Society, Washington, D. C., May, 1913.
* From the Division of Gastro-Enterology, Mayo Clinic.

1. Smithies: Am. Jour. Med. Sc., March, 1913, p. 340.
2. Graham: Collected Papers by the Staff of St. Mary's Hospital, 1, 111.

1. To admit the indefiniteness of an ulcer symptom-complex is to grant at once that mistakes in diagnosis are readily possible. That this is a fact has come within the experience of all gastrologists who have handled either a few or a large number of cases. In spite of personal opinions, we must admit that the only gastric ulcers that we can positively say exist are those which we can see or feel. While it may be clinically safer to treat a given case as gastric ulcer, as recommended by Shutz,[3] nevertheless such uncertain procedures have undoubtedly led to error, confusion and irreparable injury to patients. The prognostic aspect of the case is of greater import than the question of type of treatment based on uncertain diagnosis.

In endeavoring to gauge the importance of the previous (the precancerous) gastric history of the cases in our series we found it necessary to group them according to accepted clinical symptom-complexes, of ulcer and of cancer, respectively. This mode of procedure has many faults, but it should be emphasized that this method of classification furnishes the bulk of the literature on the subject.

The clinical symptom-complex considered for gastric ulcer is based on Friedenwald's[4] recently analyzed 409 cases, while that for cancer is compiled from the work of Osler and McCrae.[5] If the value of such grouping is questioned, then the value of much that makes up accepted knowledge of the diagnosis and the treatment of the two ailments must also be questioned. If the symptom-complexes indicated mean clinically ulcer or cancer of the stomach, then the facts that we have to present are not without significance.

We have taken the following symptom-complex to mean gastric ulcer clinically: a form of gastric malfunction occurring usually between the ages of 10 and 70 years, characterized by periodic or continuous abdominal discomfort or pain, frequently bearing definite relation to food ingestion, and often associated with epigastric or dorsal tenderness, vomiting, loss of blood (hematemesis or melena) and with hyperacid gastric contents.

We have considered as "primary" cancer, clinically, a form of gastric malfunction of a downwardly progressive nature, usually occurring in persons between the ages of 40 and 70 years, who have been previously normal gastrically, the imperfect function being characterized by abdominal distress or pain, usually associated with cachexia, loss of blood, epigastric tumor, vomiting and with gastric contents revealing motor defects, low free hydrochloric acid and the presence of organic acids and of foreign micro-organisms.

In grouping our material under these accepted clinical symptom-complexes we find that of the 566 proved cases of gastric cancer, 239, or 41.8 per cent. fall into the cancer-following-ulcer classification, while 182, or 32.1 per cent., are in the "primary" cancer division. There is, in addition, a group which may be termed cases of "irregular ulcer" that numbers 106, of 18.7 per cent. Twenty-two patients, 3.9 per cent., had a previous clinical history of gall-bladder affection, while seventeen, or 3 per cent., had early symptoms pointing to primary processes in the appendix, the pancreas or the bowel. Combining the returns from the two ulcer groups, it is seen that precancerous history indicates that 60.5 per cent. of the subsequently demonstrated cases of cancer gave earlier clinical evidences which we associate with chronic gastric ulcer, prior to the time when the ailment assumed the clinical picture that we associate with gastric malignancy. In but 32.1 per cent. was the disease, from its inception, continuous and progressively downward, and that was in persons who had been previously sound gastrically. These figures are not to be taken as they stand to indicate that nearly two-thirds of all chronic gastric ulcers later become malignant, because we know that ulcers frequently heal spontaneously or continue as chronic, inflammatory processes. Added significance, however, is given to the figures by the observation of the surgical pathologist that more than two-thirds of all excised chronic calloused gastric ulcers show early evidences of malignant metamorphosis (Wilson and MacCarty[6] and MacCarty.[7])

2. The analysis of any considerable material, ulcer or cancer, reveals many striking variations in the duration of the morbid process. Both clinical and pathologic differentiation should be made between the terms old and chronic as applied to ulcer and cancer. Chronicity, pathologically, does not necessarily mean that the disease is old, that is, of long duration in terms of months or years. Large, excavated, calloused ulcers may apparently develop in a few weeks, while many small, indurated round ulcers may give even obstructive symptoms for years, and this also applies to cancer. Within two weeks of the onset of disability I have seen a patient exhibit general carcinosis, with a large primary mass in the stomach. Another patient may have noticed an epigastric nodule for a year, and yet laparotomy demonstrates a small mass well-confined to the wall of the stomach.

The average length of time of all symptoms in our 182 cases clinically satisfying the symptom-complex of cancer was 7.1 months. Of this group the shortest history extended over but two weeks and the longest was about three years. In nine cases (1.6 per cent.) cancer of the stomach was found at exploration, when there had been no previous indications of gastric disorder. Such cases have been described by Osler,[8] Chesnel[9] and others.

Of the 239 cases clinically furnishing the symptom-complex of chronic gastric disorder previous to the period of evident malignancy, the average duration of symptoms was 11.4 years. In this group the average duration of the supervening malignant course was 6.1 months. It seems thus manifest that the periods of downward progression closely approximate in the two classes of cases, wholly independent of the earlier gastric history of the person. From our knowledge of disease processes in general, it would seem scarcely possible that the "primary" cases of cancer mentioned before existed for any considerable length of time without giving clinical evidences of their presence. Especially is this emphasized when we are aware that between 60 and 70 per cent. of all proved cases of gastric ulcer and gastric cancer are so located in the visceral wall as to early interfere with the stomach's emptying power. I have been frequently impressed by the fact that many so-called "primary" gastric cancers in the early weeks of their disturbance gave clinical symptoms that are commonly ascribed to chronic ulcer.

3. The demonstration that a long-standing gastric disturbance which is later shown to be malignant was ever benign leads largely into realms of speculation. The chief arguments in support of this supposition appear to be the following:

A. After gastro-enterostomy for chronic ulcer, when the ulcer is not excised, it is stated that such a person

3. Shutz: Wien. klin. Wchnschr., Oct. 10, 1912, p. 1513.
4. Friedenwald: Am. Jour. Med. Sc., August, 1912, p. 157.
5. Osler and McCrae: Cancer of the Stomach, Practice of Medicine, 1912.
6. Wilson and MacCarty: Am. Jour. Med. Sc., December, 1909, p. 846.
7. MacCarty: Surg., Gynec. and Obst., May, 1910, p. 449.
8. Osler: Philadelphia Med. Jour., 1900, p. 245.
9. Chesnel: Thèse de Paris, 1877.

rarely develops gastric cancer (Paterson,[10] Gressot[11] and others). The argument loses much of its force when we recall that in such a patient the entire physiology of the stomach and related viscera may have been upset. It is well recognized by able surgeons and physiologists that gastro-enterostomy is more than a simple procedure of "drainage." In the large majority of gastric extracts from stomachs when gastro-enterostomy has been performed, it is possible to demonstrate, chemically or microscopically, both duodenal and jejunal contents. Just what effect these foreign substances have on gastric ulcers or gastric cancers we have yet no means of knowing. We do know, however, that the parts of the alimentary tract from which they come are rarely affected with cancer. In our series of cases of gastric cancers, there are four patients which later developed cancer following gastro-enterostomy for ulcer. It also seems to hold that in cases of gastric cancer in which no pyloric obstructions are demonstrable gastro-enterostomy grants a longer lease of life than when such operations have not been performed.

B. Duodenal ulcer of the indurated type is a relatively more common affection than is gastric ulcer, yet carcinoma of the duodenum is a rarity. It is held that if cancer develops on chronic ulcer a great frequncy of its duodenal incidence should be expected. That the duodenum has a protective mechanism against malignancy appears to be shown by the surgical observation that only rarely does cancer at the pylorus, on the stomach side, pass to the duodenum by direct extension. In our series only four such instances were noted. The difference in the character of the tissue in which the chronic ulcer is implanted is also demonstrated by the fact that it is not uncommon to find that primary ulceration of the duodenum which extends up to the pylorus, assumes malignant characteristics on its gastric side while the ulcer on the duodenal side remains benign. There are six such cases in our series. We have also five cases in which malignant gastric ulcer was demonstrated together with benign calloused duodenal ulcer. Cancers of the duodenum occur in the great majority of instances, about or below the papilla of Vater. It is well known that this region of the viscus suffers traumatism from gall-stones, altered secretion of the liver and pancreas and from infective processes of the gall-tract. The upper part of the duodenum, where ulcer is common, is relatively immune to these influences, and also from the intense acidity and the associated peptolytic power of the gastric juice, which may irritate gastric ulcers.

C. Pathologists readily grant that there is a type of gastric affection which they class as "ulcus carcinomatosum." They demonstrate this generally at post-mortem. They do not, however, demonstrate why this type of ulceration exists, by revealing any characteristic changes in the gastric mucosa in which it occurs, nor do they show that from its beginning it was ever anything but malignant. They are willing to grant that it is something different from primary cancer which later ulcerates, but just what that difference is they do not state. This type of affection appears curiously to exist as an isolated entity with no explanation of its existence or prophecy as to its future course.

D. Clinicians hold that malignant ulcer exists in from 3 to 6 per cent. of all ulcers of the stomach (Fenwick,[12] Rosenheim[13]). The various observers, however, do not detail just how to segregate this group clinically from chronic gastric ulcer, nor do they offer suggestions of guidance for the determination of just what chronic ulcers are destined to pursue a benign course.

In our series there were 239 cases which, up to within an average time of 6.1 months before being absolutely demonstrated as cancer, showed nothing to indicate that were a laparotomy to be performed in that period anything other than chronic calloused gastric ulcers would be found. Only the subsequent course or the examination of fresh tissue at operation revealed the true nature of the affection. In this group of cases cancerous ulcers were found on laparotomy in 105 (43.9 per cent.) and extensive carcinomas, with or without ulceration, in 134 (56.1 per cent). Of the 183 cases with a clinical history of primary carcinoma, ulcus carcinomatosum was demonstrated in 28 (15.8 per cent.), while in 154 (84.2 per cent.) extensive growth was found. Of the 106 cases with clinical history of irregular gastric ulcer in the precancerous stage, ulcus carcinomatosum was shown in 22 (20.7 per cent.), and in 84 (79.2 per cent.) extensive involvement, with or without secondary ulceration.

These observations suggest several points. Development and careful interpretation of the early—the precancerous—history permits patients coming to laparotomy at a stage when in more than one-half of the instances the maximum advantage of localization of the disease is available, and hence the maximum benefit accrues to the individual case. In about one-fifth of the cases of so-called primary gastric cancer ulcus carcinomatosum can be demonstrated at operation, and these appear to be generally favorable cases for operative procedure, compared to their fellows. This is especially to be emphasized inasmuch as it has been shown by MacCarty and Blackford[14] that time-duration of symptoms bears no apparent relation to the size and extent of involvement of the lymph-nodes, and that the operative and subsequent mortality are in direct proportion to the amount of involvement of the lymph-nodes.

It would appear from the brief consideration of the objections to the interpretation of the so-called "precancerous" history with respect to the succeeding neoplasm having developed on earlier chronic gastric ulcer, as emphasized by Graham, that so far as we can judge clinically, the careful development of such history furnishes extremely valuable diagnostic and prognostic information. It would appear from the facts submitted that such interpretation allows the greatest degree of operative benefit with the minimum of operative risk. These facts have especially to be considered when we recall that we have no better clinical guide and that those who object to the significance of the "precancerous" history have nothing better to offer.

SIGNIFICANCE OF CLINICAL SYMPTOMS

Periodicity of Symptoms.—One of the strongest clinical evidences in the diagnosis of chronic gastric ulcer is the periodic recurrence of dyspeptic symptoms with perfect or fair health between the attacks. Graham,[15] Friedenwald[1] and I[1] have pointed this out. In 239 of the cases furnishing the material for this report in which there was a precancerous history of digestive disturbance, 81 per cent. complained of attacks of discomfort in that period, in 13.3 per cent. the attacks were of rare occurrence, and 4.7 per cent. had had continuous disturbance. When the period of malignancy supervened on the dys-

10. Paterson: Surgery of the Stomach, 1913, p. 248.
11. Gressot: Berl. klin. Wchnschr., 1912, xlix, 22.
12. Fenwick: Quoted by Paterson, Surgery of the Stomach, 1913, p. 248.
13. Rohenheim: Ztschr. f. klin. Med., Breslau, 1890, vii, 116.
14. MacCarty and Blackford: Ann. Surg., June, 1912, p. 811.
15. Graham: Prominent Symptoms in the Diagnosis of Gastric and Duodenal Ulcers, THE JOURNAL A. M. A., Aug. 22, 1908, p. 651.

peptic storm the affection was continuous and progressive in more than 99 per cent., irrespective of the earlier history. In the 182 cases making up the "primary" cancerous group, continuous disturbance was noted in 95.1 per cent. and frequent periodic attacks in 4.8 per cent.

Types of Pain.—In the group of cases comprising cancer following previous dyspepsia, severe pain and colics were noted in 23 per cent., steady ache in 48 per cent. and abdominal discomfort in 28 per cent. In the primary cancer group colicky pain was noted in but 6.6 per cent., steady ache in 32.4 per cent., and vague discomfort or "bloat" in 56 per cent., while in 4.3 per cent. there was no abdominal discomfort whatever. Opiate relief of pain was required in 6.5 per cent. of the first group of cases and in 2 per cent. of the second group.

Food Relation of Abdominal Pain or Distress.—In the diagnosis of chronic gastric ulceration, the relief of discomfort by the ingestion of food (if this form of relief be fairly constant) is granted to be a most valuable diagnostic sign. In a chronic dyspeptic its continuous presence is often almost pathogenic for ulcer. At the stage when the cases in our series came under observation, of the dyspepsia-preceding-malignancy group, food ease was present in 20.9 per cent., food aggravation in 46.4 per cent., food of negative significance in 27.4 per cent., and uncertain in 5.1 per cent. In the group of primary cancers, food ease was noted in but 3.2 per cent., food aggravation in 57.6 per cent., food of negative significance in 36.8 per cent., and of uncertain effect in 2.1 per cent.

Hemorrhage.—Intermittent bleeding, melena or hematemesis, is considered as almost conclusive evidence that peptic ulcer exists. While only but from 22 to 40 per cent. (Friedenwald,[4] Smithies[1]) of gastric ulcers bleed, yet when hemorrhage occurs, other things being equal, it is clinically assumed that ulcer is present. In the series of cancers here analyzed, hemorrhage was noted in 97 cases. Of the group designated by history symptomatology as malignant, following ulcer, hemorrhage occurred in 62.9 per cent.; in the group styled from early history "irregular" ulcer hemorrhage occurred in 19.5 per cent., while in the group of "primary" cancers hemorrhage occurred in 16.5 per cent. Of the whole number bleeding, 52 per cent. bled at least two years prior to their coming under observation, while 42 per cent. had bled within two years of that time. In 6 per cent. the time of hemorrhage was not determined. Of those who bled within the two-year period, 77.5 per cent. comprised cases in the non-primary cancerous group.

Anemia.—Of one or more estimations of hemoglobin in 250 of the cases, the average hemoglobin was 69.6 per cent. for the primary cancerous group and 67.2 per cent. for the dyspepsia-before-cancer class. The average for the series was 68.1 per cent.

Vomiting.—Of the entire series 326, or 57.5 per cent., of the cases vomited, and of this number 57 per cent. vomited daily. Of the series, 132 (40.5 per cent.) exhibited delayed vomiting. In but 58 (15 per cent.) was the vomitus dark or "coffee-ground."

SIGNIFICANCE OF PHYSICAL EXAMINATION

Tumor or ridge in the abdomen (generally epigastric) was demonstrated in 411 instances (72.6 per cent.). It was movable in 63.6 per cent. Of the primary cancerous group tumor was present in 39.8 per cent., while in the ulcer-cancer class it was shown in 60 per cent.

Metastases were demonstrated in eighty-six cases (14.7 per cent.) before laparotomy and were, in the order of frequency, rectal and pelvic, cervical and axillary, navel and abdominal wall, and in the groin. In the primary cancerous group, metastases were present in 20.8 per cent. and in the non-primary class in 13 per cent. When such metastases were present, the cases were generally inoperable.

SIGNIFICANCE OF TEST-MEAL FINDINGS

The Ewald test-breakfast is used in the Mayo Clinic. It is preceded twelve hours by a motor-meal after the suggestions of Strauss and Hansmann. Routine quantitative and qualitative estimations are performed by the Topfer method.

There is not space here to go into elaborate detail of the information derived from examination of gastric contents in our series of 566 cases of cancer. A few of the more important points will be detailed, and the complete report reserved for a subsequent paper.

Food Remnants.—Motility was interfered with in 73.9 per cent. of the entire series. Of the primary cancerous group, remnants were present in 64.8 per cent. and in the non-primary class in 74.2 per cent.

Acidity of Gastric Extract.—In the primary cancerous group there were 55.4 per cent. of cases in which hydrochloric acid was absent, in 11.5 per cent. hydrochloric acid was between 20 and 50. In this group 79 per cent. had total acidity under 50, and 84 per cent. had combined acidity and acid salts under 50.

In the non-primary cancerous group, free hydrochloric acid was absent in 49 per cent., in 20 per cent. it was between 20 and 50, and in 46.3 per cent. it was under 50. Total acidity was below 50 in 78 per cent., and combined acidity and acid salts below 50 in 90 per cent.

Lactic Acid.—In the primary cancerous group this was demonstrated in 52.2 per cent., while in the non-primary class it was present in 44.9 per cent.

Occult Blood.—This was shown (benzidin or guaiac tests) in 73 per cent. of the primary cancerous class and in 77 per cent. of the non-primary group.

Microscopic Examinations of Gastric Extracts.—These were made on the last 146 cases of gastric carcinoma by the agar-differential-stain method devised by me.[16]

Oppler Boas Bacilli.—This form of organism was demonstrated in 93.8 per cent. of all the cases. In this same series, yeasts were shown in 50.7 per cent. and sarcines in 17 per cent. Oppler-Boas bacilli and yeasts were combined in 30 per cent., Oppler-Boas bacilli and sarcines in 10 per cent. and Oppler-Boas bacilli together with yeasts and sarcines in 9.2 per cent. Cells showing atypical mitoses were present in 5 cases.

Special Tests.—In 141 instances of demonstrated cancer the glycyltryptophan test was made. It was positive in 40 per cent.

In thirty-one cases the hemolytic reaction to alien erythrocytes *in vitro* was positive in 47.2 per cent.

Woodyatt and Jacques[17] have recently pointed out that in gastric cancers and ereptic ferment, as estimated by the modified formaldehyd titration method suggested by Sorenson and Schiff,[18] can be demonstrated in excess in the gastric extract that has been passed through a

16. Smithies: A Method for the Microscopic Examination of Gastric Extracts and of Feces, Arch. Int. Med., June, 1912, p. 736.
17. Woodyatt, R. T., and Jacque, J. L.: The Peptolytic Power of Gastric Juice and Saliva with Special Reference to the Diagnosis of Cancer, Arch. Int. Med., December, 1912, p. 560.
18. Sorenson and Schiff: Ztschr. f. physiol. Chem., 1909, xlii, 27.

Berkefeld filter. Our experience with the original procedure is briefly summarized as follows: The average formaldehyd index of 57 cases of gastric cancer was 21; the average index of 40 cases of benign gastric ulcer was 10.8 and the average index in 75 cases of duodenal ulcer was 11.9. In 17 cases of achylia gastrica, the average formaldehyd titration index was 14.1, of 10 cases of pernicious anemia, 14.5, and in 5 cases of carcinomas of the liver, 4.25. It would appear that in some instances, the estimation of the ereptic power of gastric juice toward peptone solutions is of some value when taken in consideration with clinical history and symptomatology.

Wolffe-Junghans' Test for Soluble Albumin.—By this quantitative estimation method we have made 260 tests on gastric extracts showing achylia or free hydrochloric acid below 20, from cases in which there was no twelve-hour retention. There were eighty-three cases of gastric cancer in the series. The reaction was positive in 86 per cent. In this group there were 20 cases of lesser curvature and cardiac malignancy, and the reaction was positive in 75 per cent. Of 11 cases of ulcus carcinomatosum without gastric retention the reaction was positive in 10 cases, or 90.9 per cent. In 11 cases of extragastric carcinomas (liver and gall-tract) the reaction was positive in 54 per cent. In 10 cases of pernicious anemia, the reaction was positive in 10 per cent; in 17 cases of achylia gastrica, positive in 17 per cent. It would seem that this test is of value when taken in consideration with other evidence in carcinomas not associated with pyloric obstruction or palpable tumor, for example, growths at the cardia, the fundus, high on the lesser curvature, and on the posterior wall, and in cases in which a large carcinoma, with considerable induration, holds a pylorus open.

We have not found either the colloidal nitrogen or antitryptic estimations of practical value.

Roentgen-Evidence.—About 10 per cent. of ulcers and cancers are anatomically so situated as to prevent positive general clinical recognition. They are usually on the lesser curvature, high, at the cardia, fundus and on the posterior wall. In this type of case the fluoroscope and roentgenogram often localize definitely a process and turn a clinical doubt into certainty.

SURGICAL CONSIDERATION

Location.—In 210 cases (39 per cent.) the ulcus carcinomatosum or the growth was at the pylorus; in 27.1 per cent. on the lesser curvature near the pylorus; in 19.3 per cent. general; in 7.2 per cent. on the posterior wall, and in 4.2 per cent. at the cardia. The greater curve was involved in 1.1 per cent., the fundus in 0.75 per cent. and the anterior wall in 0.37 per cent. In nine cases there were simple and malignant ulcers associated in the same stomach, and in five cases simple duodenal ulcer and malignant gastric ulcer.

The figures for location are to be contrasted with those of Welch,[19] Brinton,[20] Lebert[21] and others. These authorities observed generally the terminal results of cancer of the stomach, nor were their observations always in a consecutive series, examined by uniform procedures. To any one who has had access to post-mortem material the difficulties connected with primary localization of gastric neoplasms need not be explained. The localization figures of our series, however, closely correspond to the location of chronic, calloused gastric ulcer, as shown by the tables of Welch[22] and myself.[1]

Lymph-nodes were involved in 71 per cent., irrespective of the early or late history. In 22.2 per cent. there was no lymph-node involvement and these cases were, as a rule, favorable for operation. Free fluid in the abdomen was present in 3.9 per cent.; these were inoperable cases.

There were sixteen cases in which a carcinomatous ulcer had been previously excised, but in which the involvement of the lymph-nodes (often microscopic only) had been noted—in which the person later returned with huge inoperable masses in the epigastrium.

Twelve per cent. of the patients died within six months following operation, but 36.6 per cent. remained well for more than three years, and 22 per cent. remained well over five years.

PATHOLOGY

It is not feasible to give here a detailed description of the specimens secured at laparotomy in this series of gastric cancers, and only a gross summary will be made.

The specimens were first examined in frozen section within a few minutes after their removal from the patients. They were next fixed in Melinkow's modification of Kaiserling's fluid and again sectioned and examined.

Types of Growth.—Adenocarcinomas were demonstrated in 556 instances (98.2 per cent); colloid carcinomas, 5 times; fibromas, 4 times, and sarcoma once. In 155 instances (27.4 per cent.) ulcera carcinomatosa were shown. These may have been primarily such, had formed from previous chronic ulcer or had resulted from surface proteolytic ulceration of preceding cancer. It is often impossible to say, without clinical history or test-meal findings, whether an ulcus carcinomatosum developed as such or whether it is a secondary result of a "primary" cancer. At the present stage of our knowledge, the surgical pathologist can positively say only that in a given specimen of chronic, indurated gastric ulcer, cancer is or is not present. There appears to be a borderline class, however, in which surgical pathologists of the widest experience in the examination of fresh tissue can often distinguish cellular arrangement or intracellular change of such nature as to warrant their stating that the process is "precancerous." Not infrequently the subsequent course of the ailment bears out the histologic prophecy.

In the experience of Wilson and MacCarty,[6] 71 per cent. of 153 cases of undoubted gastric carcinomas presented gross and microscopic evidence of previous ulcer. These observers also demonstrated that 68 per cent. of resected chronic ulcers of the stomach and duodenum (the latter furnishing a very small proportion of cases) were associated with cancer. In several instances MacCarty noted that the presence of erosions, simple round ulcer and ulcus carcinomatosum in the same specimen suggested possibilities of transition corresponding to that shown by Woolley[23] in cases of adrenal tumor. MacCarty has emphasized the difficulties of always differentiating between simple hyperplasia and malignant hyperplasia. He suggests that hyperplasia is a forerunner of malignancy, that hyperplasia varies in degree, that cancer is malignant hyperplasia, which also varies in degree, and that some degree of both processes are indistinguishable, histologically. This view is well

19. Welch: Cancer of the Stomach, American System of Medicine, ii.
20. Brinton: Brit. and For. Med.-Chir. Rev., January, 1857.
21. Lebert: Traité pratique des maladies cancéreuses, Paris, 1851, p. 97.
22. Welch: Simple Ulcers of the Stomach, Pepper's System of Medicine, ii.
23. Woolley: Tr. Assn. Am. Phys., 1902, No. 17, p. 627.

within the opinion of Adami.[24] It seems to be partially substantiated by the recent work of Drew[25] and Levin[26] in experimental tissue proliferation and inoculation of malignant tumors.

Association of Malignant and Benign Processes.—In this series of gastric cancers there were five instances of simple ulcer of the duodenum associated with malignant gastric ulcer. In nine cases, simple and malignant ulcers were found in the same stomach. Independent cancer of the stomach and of the duodenum was demonstrated once. There were two cases of multiple gastric cancers. Six times it was observed that malignant gastric ulcers stopped sharply when duodenal mucosa was reached, but in seven instances of extensive gastric cancers it was shown that the duodenum was secondarily involved by direct extension.

SUMMARY

1. A number of cases clinically admitting only a diagnosis of chronic gastric ulcer are shown to be malignant at operation. Many cases of gastric cancer reveal a "pre-cancerous" history which at any stage prior to the terminal period of malignancy satisfies the clinical symptom-complex of chronic gastric ulcer.

2. A study of 566 consecutive cases of gastric cancer, operatively and pathologically demonstrated, has been made in the attempt to determine how frequently chronic ulcer precedes gastric cancer and how this change is manifested clinically.

Clinical Consideration.—The sex ratio in gastric cancer is approximately that of chronic gastric ulcer (3.1 males to 1 female). More than three-fourths of the cases of gastric cancer occur in persons between the ages of 40 and 70 years; more than one-half those of chronic gastric ulcer (134 cases) between the ages of 40 and 70. A family history or one of blood-relationship of gastric cancer existed in 9.2 per cent.—a history of tuberculosis in 1.2 per cent.

Precancerous history indicates that 41.8 per cent. of proved cases of gastric cancer presented early symptomatology of chronic gastric ulcer; 18.7 per cent. showed the early symptomatology of "irregular" gastric ulcer, and 32.1 per cent. of the cases had the symptom-complex of gastric cancer, without previous gastric malfunction. Thus in more than 60 per cent. of the cases of gastric cancer the patients had previous dyspeptic history and this history was generally that of chronic gastric ulcer.

The length of time of all symptoms of the "primary" cancerous group (182 cases) was 7.1 months. The average length of time of the precancerous dyspeptic period in 239 cases was 11.4 years. In this group the supervening period of evident malignancy averaged 6.1 months.

Development of precancerous history permits patients coming to laparotomy at a stage when in more than one-half of the instances surgical advantages of a localized process are available. In about one-fifth of the cases of "primary" gastric cancers, ulcus carcinomatosum is demonstrated operatively.

Significance of Clinical Symptoms.—Periodicity: In 81 per cent. of the cases in which prolonged dyspepsia had preceded cancer, periodicity of symptoms was noted in that stage, while in 99 per cent. of the cases periodicity was absent when the process became evidently malignant. In but 4.8 per cent. of 182 cases of "primary" cancer were there periodic attacks of distress.

Types of Pain.—Nearly one-fourth of the patients in whom dyspepsia preceded malignancy had prostrating pain (colics, etc.), while only about one-fifteenth of the patients with "primary" cancer exhibited this type of distress. Opiate relief was required in 6.5 per cent. of the former class and in 2 per cent. of the latter.

Food ease of pain was present in more than one-fifth of the cases in which malignancy followed clinical chronic gastric ulcer and in 3.2 per cent. of the "primary" cancer group.

Hemorrhage.—Melena or hematemesis was noted in 17.1 per cent. of the cases. Of the group styled malignancy following ulcer, hemorrhage occurred in 62.9 per cent.; in the "irregular ulcer" group before malignancy, in 19.5 per cent. and in "primary" cancer group 16.5 per cent. Of patients bleeding within two years of coming under observation, more than three-fourths fell in the ulcer-before-cancer classification.

Hemoglobin estimation was rather higher in the primary cancer group than the ulcer-preceding-malignancy class.

Vomiting was observed in more than 57 per cent. of the cases of gastric cancer. More than 40 per cent. exhibited delayed vomiting. Of the entire group, 15 per cent. gave a history of dark or "coffee-ground" vomit.

Nearly three-fourths of the cases of gastric cancer exhibit abdominal tumor or ridge. This is present in nearly two-fifths of the cases of "primary" cancer and more than three-fifths of the cases in which ulcer preceded malignancy clinically.

In more than one-fifth of the cases in the "primary" cancer division and in about one-ninth of the cases in the non-primary group, metastases were demonstrated before laparotomy

Test-Meal Findings.—Delayed gastric emptying power was evidenced in nearly two-thirds of the cases in the primary cancer class and in nearly three-fourths of cases in the non-primary division.

Acidity.—In 55.4 per cent. of primary gastric cancer cases free hydrochloric acid was absent; in 11.5 per cent. it was between 20 and 50.

In the non-primary cancer class free hydrochloric acid was absent in 49 per cent. and in 20 per cent. it was between 20 and 50.

Lactic Acid.—This is more commonly noted in the primary cancer group than in the non-primary division.

Occult Blood.—This is rather more frequently demonstrated in the non-primary cancer class than in the primary cancer group.

Oppler-Boas Bacilli.—These were demonstrated in 93.8 per cent. of cases of gastric cancer by the differential agar-stain method.

Glycyltryptophan Test.—This was positive in 40 per cent. of the cases (141). The *hemolytic* reaction was positive in 47.2 per cent. of the cases (31). The *formaldehyd titration index* was uniformly higher in gastric cancer and ulcera carcinomatosa than in other gastric ailments. The estimation of soluble albumin by the *Wolff-Junghaus test* was more uniformly positive in cancer and carcinomatous ulcer cases than other forms of gastric disturbance.

Roentgen-Ray Evidence.—In about 10 per cent. of the cases of gastric cancer evidence returned by fluoroscope and roentgenogram is of distinct value in making absolute diagnosis of physically inaccessibly located cancers.

24. Adami: Malignancy, Principles of Pathology, p. 616.
25. Drew: Jour. Path. and Bacteriol., July, 1912, p. 42.
26. Levin: Jour. Exper. Med., 1912, No. 12, p. 149.

Surgical Consideration.—The locations of ulcera carcinomatosa and cancer as shown by laparotomy closely approximate those of chronic gastric ulcer, but do not correspond to the post-mortem localization of gastric cancer. More than one-fifth of the cases of gastric cancer revealed no involvement of the lymph-nodes, with generally favorable operative outlook. In nearly 4 per cent. free abdominal fluid was present. These were inoperable cases.

Pathology.—More than 98 per cent. of gastric cancers were adenocarcinomas. Sarcoma occurred but once in 566 cases. More than one-fourth of gastric cancers show ulcerative changes, as primary or secondary type of growth. It is usually an easy matter to state definitely whether or not a given specimen is at the time benign or malignant. There is a group of cases of chronic ulcer in which examination of fresh tissue reveals cellular or intracellular variations of such type as to warrant designation of "precancerous" ulcer. It is often impossible to distinguish stages of simple and malignant hyperplasia histologically. Benign ulcers of the duodenum may be associated with malignant gastric ulcers. Benign and malignant ulcers may be associated in the same stomach.

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THE MEDICINE OF OUR FOREFATHERS*

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In talking to the oldest medical society in this country it has seemed to me that no subject would be more suitable than what our forefathers accomplished in medicine. Our generation has become so accustomed to lauding itself as "the heirs of all the ages in the foremost files of time" and therefore so far ahead of the past that really our forefathers were to be pitied because they did not live to see our glorious time, that I have sometimes taken a little almost malicious pleasure in pointing out how many of the things that we think new are indeed very old. Anesthesia and antisepsis, sometimes looked on as the triumphs of our time, were anticipated by preceding generations in very striking ways. Tom Middleton, the English poet of the seventeenth century, has spoken of "the mercies of old surgeons who put their patients to sleep before they cut them," and we have the records of two or three forms of anesthesia during the thirteenth and fourteenth centuries, at least one of them by inhalation. Strong wine was used as a dressing for wounds, and the surgeons effected union by first intention and boasted about it (we owe that Latin expression "first intention" to them), and even declared that surgeons whose wounds suppurated when they were made through an unbroken skin surface were responsible for the evil results that followed.

Indeed, practically the whole of our surgery which we have been inclined to think of as the particular development of our generation was anticipated in the long ago. Operations were done on the skull for abscess and tumor in the brain, on the thorax for the pus and other fluids, and on the abdomen for all sorts of internal conditions. Particularly the surgeons operated for the radical cure of hernia, employed an exaggerated Trendelenberg position in order to have the intestines drop away from the site of operation, fastening their patients' heads down on a slanting board and in general solving the technical problems very much as we do by special sutures, by the use of wire auxiliaries and other things of that kind. Hugo von Pfolspeundt invented a flanged tube which he inserted into the intestines when they were badly wounded, bringing the intestines together above them and asserting that the tube would be passed out, but not until after such intestinal agglutination had taken place as would prevent the extravasation of the contents of the intestine. This anticipation of the Murphy button five centuries ago is interesting but not so striking as the use of the trachea of an animal for this purpose of which we have a description, the inventor declaring that the trachea would be gradually disintegrated, but not before aglutination of the edges of the wound would take place.

As a matter of fact, after considerable study of the history of medicine as well as other phases of human intellectual activity, I have come to the conclusion that whenever men deliberately and seriously face any problem they solve it about as well as at any other period in the history of medicine. While we talk much of progress, let us not forget that in the great phases of intellectual achievement there is no such thing as progress, but on the contrary abundant evidence of decadence. No one thinks for a moment of saying that there is progress in literature or that the writers of our time are doing anything that is serious or likely to endure. Not long since the New York *Times* declared on the occasion of the death of Mark Twain that of the four men who had international reputation in literature, that is, who in our generation had been read generally outside of their own countries, three were now dead. The four were Zola, Tolstoi, Mark Twain and then the living one, Rudyard Kipling. Kipling, like Jeffries and some others, has not "come back" and the list is interesting therefore as showing the caliber of our literary achievement. Our poets are such minor poets that the less said about them the better. Our dramatic literature is almost literally a farce when it is not an obscene joke. There has not been a new idea in architecture for four hundred years. Painting, sculpture and the arts and crafts look to the past for models. In everything of this kind we are imitators.

Over and over again men have faced human problems seriously and have accomplished good results. They have done so whenever in humility of heart they have realized that good work does not come of itself or by any inevitable law of progress, but by maintaining high ideas and ideals and working them out patiently. Whenever men have observed for themselves, drawn their conclusions patiently and without haste avoided theorizing and the hasty overconclusiveness so characteristic of youth, they have done things. Unfortunately as Europeans sometimes say in all kindliness of heart, "You Americans are so delightfully, refreshingly, poignantly, unconsciously young."

Even here in America, however, we must not think that this is the first time that good work has been done; and if on an occasion of this kind I should be tempted to go back for about a hundred years I would be able to show you some of the things that men were thinking and doing in this country that are anticipations of what we are inclined to think of as our most recent discoveries.

Probably the discovery that we have most reason to be proud of here in America in our time is that by

* Address delivered, in part, at the annual banquet of the New Jersey State Medical Society at its annual meeting, June 11, 1913.

which we know that yellow fever is not spread through the air, or by fomites, but is distributed by the mosquito. The other day I was looking over an old pamphlet which shows how much an observer of a hundred years ago here in America anticipated the most important portion of that discovery by some notable observations and really surprising experiments undertaken to demonstrate the value of his observations. I quote from "A Memoir on Contagion More Especially as It Respects the Yellow Fever," read in the convention of the Medical Chirurgical Faculty of Maryland, June 3, 1817, by Nathaniel Potter, M.D.:

During the prevalence of the yellow fever in this city in the years 1798, 1800 and 1802, we proposed and executed several experiments adapted to the question of contagion. On September 20, 1797, having been called on to visit a man in the act of dying, covered with perspirable matter, I applied a piece of muslin to his body till it became saturated, and in this condition, half an hour after, bound it around my head at bedtime. The fetor was nauseous in the extreme and occasioned a transient sensation of sickness of stomach; but, being languid from excessive exercise during the day, a profound sleep succeeded, from which I did not awake till 7 o'clock the next morning. I experienced no further inconvenience. In 1798, a few sporadick cases occurred in Baltimore. I inoculated myself with the perspirable matter that adhered to the skin of a patient in the last stage of yellow fever, but experienced no other effect than that which followed the punctures made in both arms. As the few cases that occurred this year assumed an uncommonly malignant aspect and many of them were accompanied by inguinal buboes, I availed myself of the occasion to inoculate myself with the matter formed by suppuration. On October 11, I inserted the matter in both arms, taken from the groin of Mr. Rector Lowe. A slight circumscribed redness appeared about twenty-four hours after the operation, and continued nearly stationary for four days. As no irritation proceeded from the punctured parts, and the rubefacience evidently declined on the fifth day, I concluded that the local appearances ought to have been ascribed to the puncture, or the acrimony of the pus.

It has been suggested, that as the stomach is one of the principal organs invaded by inflammation in this disease, and as the black vomit would appear to be a secretion from that organ, that the disease might be reproduced by receiving this secretion into a healthy stomach. The experiments of Dr. Ffirth have decided that this hypothesis is visionary. He swallowed the black matter in the state it was ejected from the stomach, but with perfect immunity from disease. That this fluid cannot propagate the disease when brought into contact with the nerves of the skin, we have ascertained by reiterated experiments.

Dr. Potter argues that quarantine against yellow fever is useless and indeed absurd and as applied tyrannous. He is quite sure that the affection is carried through the air and cannot be kept out by any quarantine measure. It was not carried, however, by respiratory effluvia or fomites because patients suffering from yellow fever in hospitals did not communicate it to those near them. He argues from this that other infectious diseases also cannot be kept out by quarantine. He mentions particularly the plague and typhus fever. He protests vigorously against the imposition of quarantine and quotes the opinion of Jefferson who, on the strength of investigations made with regard to yellow fever, advised strongly against quarantine laws. The conclusions of course are too wide. Yellow fever spreads through the air, but by means of the very material mosquito and not through some more tenuous medium. Plague also spreads through the air, but by the medium of the flea. The air-borne diseases are a thing of the past in his sense of the word and yet he anticipated with regard to the one disease that was under his observation our most recent conclusion, and if he had not insisted on drawing his conclusions so widely would have been far in advance of his times. Generalizations nearly always fail in medicine.

It so happens that in the same bound volume of pamphlets at the Surgeon-General's Library, for it is to them that I owe the privilege of quoting this monograph, there is an announcement of Dr. David Hosack of New York of the "Course of Studies Designed for The Private Medical School Established in New York by David Hosack, M.D.," professor of the theory and practice of medicine and of midwifery and the diseases of women and children (New York, printed by Van Winkle, Wyelie & Co., 1816). In this, "to those students who have not received a liberal education, the following works are recommended previously to the commencement of their medical studies":

RHETORIC AND BELLES LETTRES

Murray's "Grammar" (large edition).
Blair's "Lectures on Rhetoric."
Duncan's "Logic."
Campbell's "Philosophy of Rhetoric."
Gregory's "Letters on Composition."
Kett's "Elements of Human Knowledge."
Barron's "Lectures on Belles Lettres and Logic."
Gerard on Genius.
Gerard on Taste.
Alison on Taste.

GEOGRAPHY

D'Anville's "Ancient Geography."
Pinkerton's "Modern Geography."
Morse's "American Geography."

HISTORY

Priestley's "Lectures on History."
Tyler's "Outlines of General History."
Anquetil's "Universal History."
Miller's "Retrospect of the Eighteenth Century."

NATURAL PHILOSOPHY

Helsham's "Lectures."
Gregory's "Economy of Nature."
Cavallo's "Natural Philosophy."
Imison's "School of Arts."
Ferguson's "Astronomy."

MORAL PHILOSOPHY

Beattie's "Elements of Moral Science."
Beattie's "Essay on Truth."
Paley's "Principles of Moral and Political Philosophy."

It is also recommended to the young gentleman, unprepared by a collegiate course of study, to attend at least one course of lectures on mathematics and natural philosophy, as delivered in Columbia College, and to devote an hour daily to the Latin, Greek and French languages, under the direction of a private teacher.

Dr. Hosack evidently had an excellent appreciation of what was needed to prepare a man for medical studies and a high ideal of what the medical student ought to know. Now that with much trouble and pains we have climbed back to the point at which we ask a single year of college work in the majority of the schools, Dr. Hosack's standard of a century ago should be thoroughly recognized. His three years of medical studies includes a range of medical reading at least as wide as any recommended now, and he even suggested the medical journals with which students were to become familiar. Dr. Samuel W. Francis was associated with

him in the teaching, and both of these men were physicians of broad and deep scholarship. They were not unpractical idealists, however, for the announcement declares that a medical student is not expected to become familiar with all of these books but to know how much is expected of him, to occupy every moment and "thus seeing a plan of study before him he will remit no honorable exertion to its successful acquisition. The works of these distinguished writers will have taught him to appreciate the dignity and importance of his profession and in the intervals of practice he will be induced to complete whatever of this outline he shall have left imperfect." The private library of Dr. Hosack was constantly open to the student for reference. When we realize how much medical education had descended in the next generation so that two ungraded terms of four months each were offered to men without any suggestion of preliminary education, it is hard to understand how such things come about.

When writing the history of the New York State Medical Society about ten years ago I called attention to the fact that the essays which were awarded prizes by the Medical Society of the State of New York in 1825 and immediately succeeding years were such as might well win prizes at the present time. It would be easy to think that prize essays written at that time would have comparatively little interest except possibly to the historian and still less of practical value. The surprise, therefore, is to find that the subjects chosen are treated nearly from the same point of view as we would treat them at present and that, indeed, the writers anticipate many of the points of view that we are much inclined to think of as quite modern. The first prize given was awarded in 1825 for an essay by Dr. Andrew Hammersley.[1]

Dr. Hammersley begins by discussing and rejecting the popular idea that consumption is due to cold, or that indeed cold is a source of the many ills that are attributed to it. When we recall that even at the present time this is a popularly accepted notion, Dr. Hammersley's paragraphs are interesting.

> Popular prejudice has all along conduced to the belief that sudden exposure to cold, when the body is heated, would be attended with extreme hazard, and this alone has been accounted one of the fruitful sources of disease. The researches, however, of modern experimenters has tended in no small degree to qualify such conclusions.
>
> Those of Dr. George Fordyce and Sir Charles Blagden, familiar to every person, are among the most important in evincing that exposure to a high degree of cold, after violent heat, is unattended with danger to the constitution. This fact is likewise confirmed by the mode in which the practice of bathing is conducted in Russia, and in several other countries, the inhabitants of which, to heighten the luxury and add to the refreshment of immersion in heated baths, or long exposure to vapor of high temperature, immediately plunge into contiguous cold baths, or run into the open air and without the smallest covering on their bodies roll themselves in snow. In considering a fact of this kind, there are two particular circumstances to be noticed, to wit, the acquired vigor of the subject to whom the practice appertains and the inherent powers of reaction possessed by the animal economy. The hardy Russian, whose every fiber is made tense by the severity of his climate, suffers no harm from such practices, as the principle possessed by the system just adverted to is put in action in a frame capable of enduring the influence of the opposite medium to which it is exposed.

On the other hand, Dr. Hammersley is very certain that dust has a great deal to do with the development of tuberculosis, and he points out that it is particularly workmen whose occupations keep them in a dust-laden atmosphere and especially whose trades involve the making of much dust who are most likely to suffer from it. He says:

> Among the various artisans Dr. Cullen has enumerated stone-cutters, millers and flax-dressers as particularly subject to attacks of this disease. "But the most striking example," says another writer, "of this species of injury is afforded by one of the processes of the needle manufactory; it is that of dry grinding by which the needles are pointed; the persons employed in this labor are universally affected in a short time with the symptoms of approaching consumption. They go on coughing till they either spit blood or a thick substance having the appearance of matter. They decline in flesh and strength and scarcely ever survive to the fortieth year. Dr. Kirkland observes that scythe-grinders are subject to a disease of the lungs from particles of sand mixed with iron dust (getting into the lungs and setting up an infection) which among themselves they call the grinder's rot." It is moreover asserted on good authority that the filers of London die almost universally at a very early period of a similar disease. Certain other occupations are very properly thought to bestow an immunity from this extensive malady. Such are those of boatmen, watermen, sailors and gardeners. Certain animals of the lower order are moreover supposed to enjoy a marked exemption, as dogs; while on the other hand, cows, it is reported, are particularly subject to it.

In the last sentences he dwells on the fact that people who live in the outdoor air have an immunity to the disease to a considerable extent, and he discusses animal tuberculosis much in the same way that we were discussing it after Koch's announcement with regard to bovine tuberculosis at the beginning of the twentieth century.

The second prize essay was "The History, Causes and Treatment of Typhus Fever," by Dr. Alfred Y. Magill of Winchester, Va., and may be found in the Transactions of the Medical Society of New York for 1834-5. It might be thought that whatever there would be of interest in this essay would surely be contained in the discussion of the causes or perhaps of the history of the disease. As a matter of fact, it is under treatment that the part of the essay which is of enduring interest occurs. We think of the cold-water treatment of typhoid fever as modern, yet here is a thorough discussion of it in a prize essay nearly a century ago in which the writer confirms most of his conclusions from authorities who wrote more than a century ago.

Perhaps even more interesting than the use of cold water for the reduction of fever is the suggestion that when water was not available or was contra-indicated for any reason the patient should be put in the cold air until a definite reduction of temperature was secured. The opening of a window directly in the face of a cold northwest wind would remind one of some of the venturesome proceedings of physicians especially in hospital work in recent years. Dr. Magill said:

> No one can peruse Dr. Currie's recent experience in this matter without being convinced that cold water when properly applied is a most important remedy in case of fever. Its utility is not confined to typhus; it is equally serviceable in all fevers attended with increase of heat and arterial action. Its effect on the pulse is astonishing in many cases. We have often known the mere bathing of the hands and arms of a febrile patient to reduce the action of the pulse from ten to fifteen beats in the minute, and if this partial application of cold water has such an effect on the action of the heart, how

1. Hammersley, Andrew: Dissertation on the Remote and Proximate Causes of Phthisis Pulmonalis, Tr. Med. Soc. New York, 1834-1835, ii.

much greater must be the effect of a cold bath. We have many instances on record of its calming at once the most furious delirium; persons in such a situation have often jumped overboard from a vessel into the sea and been taken up perfectly calm and rational and with an almost complete extinguishment of the fever. With the many strong instances recorded in various works of its remarkable efficacy in curing fever, it is justly a matter of surprise that physicians so seldom call its great powers into requisition. It exercises a more immediate control over the action of the heart than blood-letting. Dr. Currie mentions a striking instance of the effects of cool air in reducing the pulse. "In the month of May, 1801," he says, "I was desired to see a patient ill of fever in Sparling Street. I found him in the tenth or eleventh day of the fever, delirious and restless; the surface of the body dry, and his heat 104 F. The room was close and I desired the only window in it opened. The wind from the northwest blew directly into this window, and the bed being situated between it and the chimney, a pretty brisk stream of air passed over it. The patient had just thrown off a considerable part of his bedclothes and was exposed naked to the breeze. I sat by him with my finger on his pulse watching the effect. In a little time the pulse fell from 120 to 114 in the minute; he became more tranquil and soon afterward he sank into a quiet sleep, in which he remained when the water for effusion was prepared; of course we did not disturb him; he remained exposed to this cold air until morning when his pulse was found to be about 100 and his heat 101."

It is interesting to note that though the clinical thermometer was not often used for half a century after the date of this observation (indeed, Keen says that surgeons during the Civil War estimated fever by touch and not by the thermometer), this English observer quoted by an American prize essayist was studying his fever cases very carefully with the aid of a Fahrenheit thermometer in the early years of the nineteenth century.

While all patients suffering with fever were to have their temperature reduced by some direct use of cold air or water, he did not think that patients should be subjected to cold applications indiscriminately but advised the selection of patients and suggested certain contra-indications to this method of treatment. The whole discussion is interestingly up-to-date in many ways and deserves a place in our literature. He said:

But cold water is by no means to be used indiscriminately in every case of fever; neither is it to be used in all stages of any fever; the rules which Currie has laid down on this subject are excellent and cannot be followed too closely. If we obey strictly his directions, we will always be prevented from misapplying or doing injury to its use. He gives separate rules for the external and internal use of cold water, but as its effect, except in degree, is the same when used either way, one set of rules will answer as a guide for both. His first general rule is that "it may be used (either internally or externally) when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration." We will now give the substance of the particular rules he has laid down on this subject: 1. Cold water is not to be used either internally or externally in the cold stage of the paroxysm of the fever, however urgent the thirst; taken at such times it increases the chilliness and produces great weakness of the pulse, and if used to any extent might cause the death of the patient. 2. When the hot stage is fairly formed and the surface is dry and burning, cold water may be used both ways with the utmost freedom; frequent draughts of cold liquid and its external application, under such circumstances, are highly grateful; they diminish very much the heat of the body and lessen considerably the volume and frequency of the pulse. 3. It is also necessary to abstain from the use of cold water when the body is under profuse perspiration, and this caution is more important in proportion to the continuance of this perspiration."

The third prize essay was on iodin, by Samuel J. Hobson,[2] M.D., a member of The Philadelphia Medical Society. Iodin has been used for many and varied ailments since Hobson wrote his essay, but there are no affections for which it was recommended in the centuries since, so far as I can find, that are not mentioned by the Philadelphia prize essayist about the end of the first quarter of the nineteenth century. All the glandular enlargements including the mamma, the liver, the spleen, the testicles, scrofula, dysenteric tuberculosis, bone and every other form of tuberculosis were all to be benefited by iodin. It is well worth the while reading that essay on iodin and comparing it with some of our text-books of materia medica and therapeutics which still carry wonderful indications of the most varied character for iodin.

The fourth prize essay was by Dr. James Conquest Cross and was on the subject of delirium tremens. It will interest the modern physician to know, though I am not sure that the detail has any historical value, that the prize winner, Dr. Cross, was from Kentucky and knew his subject very well. His history of the disease, its first description as an independent entity in 1801 and other details are of interest. He insists on individualization of the cases, deprecates the overuse of opium and discusses venesection and various antiphlogistic methods of treatment.

The fifth prize essay that has been preserved is that of Dr. Benjamin W. McCready of New York, who wrote on The Influence of Trades, Professions and Occupations in the United States, in the Production of Disease.[3] His was the prize essay for the year 1837. As I have already stated,[4] and shall repeat here, this was the first time so far as I know, that the prize was awarded to a New York man. Kentucky, Virginia and Pennsylvania had been represented in the list of prize-winners, and it is very evident that the prizes were awarded entirely for the merit of the essays and not for any personal or partial reasons. In this fifth essay the question of the overcrowding in the tenement house districts of New York City is discussed in the same terms that would have been used fifteen years ago on the same subject. The reasons for ill health in the tenement house districts are thus stated:

In other cases the cupidity of landlords has tempted them to build up narrow alleys with small wooden tenements which, costing but little, and being let to numerous families, yield immense profits. The alley is often not more than 6 feet wide, paved with round stones and with very insufficient means for draining off the water. It is not uncommon in such situations to find one or two of the apartments in each house entirely underground. Can we wonder if in such a state of things we find moral as well as physical disease, vice as well as sickness? Can we expect men who live thus to be orderly and sober, or women to be cleanly and domestic? In such situations, during the summer months, diarrhea and dysentery are rife, and among children fatal. Scrofula, in some of its protean forms, is frequently met with and they form the lurking places where small-pox, measles and scarlet fever lie covered under the ashes, or when circumstances are favorable, blaze up into sudden fury.

2. Hobson, Samuel J.: The History, Preparation and Therapeutic Uses of Iodin.

3. Transactions of the Med. Soc. of N. Y., 1837.

4. Walsh, James J.: The Wisdom of Our Grandfathers, History of the Medical Society of the State of New York, Chapter viii, Part 2; New York State Jour. Med., February, 1907.

At the end of Dr. McCready's essay there is a rather striking set of passages in which he discusses the evils of the quack and especially the patent medicine vender, and suggests the reasons for the popularity of their products. He has caught the essence of the idea in the declaration that the present popular errors in medicine are always the result of previous supposed knowledge among physicians themselves. Dr. McCready's remedy for this unfortunate state of affairs would be the spread of real knowledge. In the seventy-five years that have elapsed since the writing of this many improvements and advances in education have come, yet his words retain their forcefulness and application.

> That the present errors of the vulgar were formerly the themes of philosophers, is an old and trite observation. Most of the vague and unfounded notions of the public concerning the nature and treatment of diseases, which embarrass the young practitioner on his entrance into practice, were once the cherished doctrines of the wise and learned. Can we do nothing to correct the evil our predecessors have occasioned? Can we not substitute truth for falsehood, facts and reasoning founded on facts, for idle notions, and injurious hypothesis? I would not wish to instruct the community in a knowledge of the symptoms and treatment of diseases—that were impossible; but I would wish to make a knowledge of the laws and functions of the living body a necessary part of a liberal education, and to communicate to all classes so much information as would enable them to educate their children and regulate their diet, clothing, exercise and habitations.

Dr. McCready has also an excellent review of quack medicines which might apply to present conditions; and he thought the newspaper press as responsible for it then as we do now. The evil results to be anticipated from the abuse of medicines are just those that medical writers of the present day insist on.

> There is an evil, which has of late years become of excessive magnitude, and which is daily increasing—the consumption of quack medicines. Aided by the immense circulation of a cheap, press, many of these nostrums have obtained a sale that exceeds belief. Few patients among the lower classes now apply to a physician, who have not previously aggravated their complaints by swallowing numbers of these pretended specifics, and a late resident-physician of the city hospital has informed me that he has met with many cases of derangement and irritation of the mucous membrane of the stomach and bowels, caused solely by the drastic articles which enter into their composition. Formed in most instances of irritating ingredients and directed to be taken in immense doses, and as infallible remedies in all cases, the mischief which they do is incalculable, and unless some stop be put to the evil by law or by an enlightened public opinion, it will soon claim an unenviable preeminence as a cause of public ill health.

Surprising as it may seem to us because of the feeling that has been so commonly cherished of the wonderful advance that has been made in recent years in medicine, what we find when we know sufficient of the details of the history of medicine is that even here in this country many of the ideas that we are likely to think of as most recent were anticipated long ago, and discussed very sensibly by some of our grandfathers in medicine, though their ideas seem to have affected only a few of the thinking physicians in practice at the time. After all, it has probably always been true in the history of medicine that the ordinary practitioner of medicine was using conventional or routine remedies and modes of treatment and expecting much, but seldom realizing all that was being accomplished around him. Even in our own time this is probably much truer than is thought and indicates what possibilities for advance there is in medical practice. Even now the knowledge that we have with regard to cancer and its early diagnosis, as well as the early diagnosis of tuberculosis, is neglected to such an extent that it is only when patients are in advanced stages that an absolute diagnosis is made, and then their best chance for recovery is already gone.

Let us not forget that practically all our diagnosis of lung diseases was outlined in Laennec's book of auscultation nearly a hundred years ago, and that very little has been added to that. Even now, however, there are many physicians who do not apply this great discovery of Laennec in anything like the scientific way that it should be applied.

Instead of lying back on our oars then and thinking that the tide of progress will carry us with it inevitably, it is well for us to recall that at any time in the history of medicine thoughtful physicians have anticipated discoveries that seemed novel long after their time, and that indeed at any time men who have approached clinical problems seriously have done great good to patients in spite of any supposed lack of knowledge in their time. It is the thinking physician occupied with his patients and not with cases who represents the most important factor in every generation of medical history, and there is never anything absurd about that. After all, it is not surprising that physicians should have proved capable of solving so many problems so well in the past, for man has at all times solved his problems nearly as well as at any other time in the history of man. Our philosophy, our literature, our poetry, our architecture, our painting, our sculpture is nearly all old, and what is best is of the olden time. Why should not this be true with regard to medicine, at least to the extent that would make us realize that we have a glorious history of medicine, not for one or two generations but for many centuries and even for more than a century right here in America.

110 West Seventy-Fourth Street.

AN ETIOLOGIC STUDY OF HODGKIN'S DISEASE

PRELIMINARY NOTE *

C. H. BUNTING, M.D., AND J. L. YATES, M.D.
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In a recent publication[1] we have described a diphtheroid organism obtained in pure culture in four cases of Hodgkin's disease, and observed in three others. In order to determine the possibility of an etiologic relationship between this organism and the disease, the *Macacus rhesus* monkey has been used for inoculation experiments. While the experiments have been under way but a comparatively short time, histologic examination of a portion of a group of enlarged lymph-nodes, removed for transplantation to another animal, is of so encouraging a nature that a report seems justified. While we cannot yet claim that by the inoculation of the organism in question we have produced Hodgkin's disease (meaning the firm establishment of the organism in the animal and a continued and progressive enlargement of the general lymphadenoid tissue), we can say, that by repeated

* From the Pathological Laboratory of the University of Wisconsin.
* This work has been aided by a grant from the Rockefeller Institute of Medical Research.

1. Bunting, C. H., and Yates, J. L.: Culture Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236.

injections we have produced progressive enlargement of a single group of lymph-nodes which at the time of writing show histologic changes identical with those seen in the lymph-nodes of human beings, where the disease is of the same duration.

The culture used in inoculating this animal was obtained from a patient in the Mayo Clinic, Case 2 of our report, and is designated in the laboratory as Subculture X. F. A. In some of the later inoculations this was combined with a subculture recovered in pure condition from an abscess which followed inoculation of Monkey 3. This is the only case in which an abscess has followed inoculation of any of the animals. This culture had survived forty-eight hours in the monkey and it was thought might have acquired some tolerance. It is designated as Subculture X. F. A. M.

The record of Monkey 1, from which the tissue was removed, is as follows:

MONKEY 1.—Rhesus, female, arrived from New York April 11, 1913.

April 15: Temperature 38.6 C. Red blood-cells, 6,680,000; white blood-cells, 22,300. Lymph-nodes in both groins somewhat enlarged. Two lymph-nodes palpable low down in right axilla, also in left axilla.

April 19: Temperature 38.7 C. Injection of the twenty-four-hour growth of culture X. F. A. on Loeffler's serum, diluted with normal salt solution, into right axilla.

April 21: Temperature 39.5 C. White blood-cells, 17,600.

April 22: Temperature 39 C. Two axillary lymph-nodes on right side much enlarged, apparently about 1 cm. in diameter.

LEUKOCYTE COUNTS IN THE MONKEY

Date	Total Count	N.	E.	B.	S. L.	L. L.	L. M.	Tr.
April 15	22,300	51.0	2.4	0.2	40.8	2.8	0.4	2.4
April 21	17,600	48.4	1.0	0.8	38.2	5.2	0.6	5.8
April 24	14,000	28.2	1.6	1.2	56.0	5.2	0.6	7.2
March 1	31,250	62.0	1.8	0.4	27.2	2.2	5.4	6.0
May 23	20,000	42.8	2.2	0.8	46.0	2.2	1.0	5.0
May 28	*	34.4	5.0	0.0	49.6	1.8	0.4	8.8
June 11	14,000	29.8	5.4	0.2	54.8	4.6	0.2	7.0
June 30	*	50.0	1.8	0.0	38.0	2.0	0.2	8.0
July 1	*	51.8	2.2	0.2	37.2	2.0	0.2	6.4
July 2	*	48.6	3.8	0.2	36.2	3.6	0.4	7.2
July 3	*	51.2	1.6	0.2	35.0	3.2	0.2	8.6
July 5	24,000	52.8	2.4	0.0	32.0	4.6	0.4	7.8

April 24: Temperature 38 C. White blood-cells, 14,000. Lymph-nodes in right axilla still enlarged.

April 26, 10 a. m.: Temperature 38 C. Von Pirquet test made on left arm.

April 28: There had been no reaction to von Pirquet test. Lymph-nodes in right axilla still enlarged.

May 1: Temperature 39 C. White blood-cells, 31,250. Lymph-nodes of right axilla still enlarged.

May 23: White blood-cells, 20,000.

May 24: Inguinal lymph-nodes somewhat enlarged. Moderate enlargement in left axilla. Two large lymph-nodes in right axilla. One twenty-four-hour slant on Loeffler's serum of Culture X. F. A. injected in right axilla.

May 27: Temperature 39 C. Marked induration in right axilla, involving enlarged lymph-nodes. The whole mass is about 2 cm. in diameter. Some oozing of serum along needle track. A smear from this shows the diphtheroid organism.

June 7: Marked enlargement of right axillary lymph-nodes. One twenty-four-hour slant of Culture X. F. A. injected into right axilla.

June 9: Marked induration in right axilla.

June 11: Induration lessening. Temperature 38.6 C. White blood-cells, 14,000.

June 21: Two twenty-four hour slants of X. F. A. injected into right axilla.

June 30: Lymph-nodes in right axilla large, surrounded by indurated tissue. Injection into right axilla of one twenty-four slant of X. F. A. and one of X. F. A. M.

July 2: Large lobulated indurated mass, roughly 3 by 3 cm. in right axilla. No leakage along needle track. No sign of softening or of abscess formation.

July 5: White blood-cells, 24,000. Induration of axilla marked, apparently increasing. Lymph-nodes involved, swollen and firm.

July 6: Portion of group of lymph-nodes in axilla removed under ether anesthesia.

The excised tissue consisted of a group of four lymph-nodes united by fairly firm moist connective tissue. Two of the lymph-nodes were approximately 15 by 7 mm., each, in size, while the other two were each just under 5 mm. in diameter. Portions of the tissue were fixed in formaldehyd solution and sectioned.

Histologically, the tissue between the lymph-nodes was found to consist largely of recently-formed connective tissue, with abundant fibroblasts. There is some polymorphonuclear infiltration.

The changes in the lymph-nodes are quite similar so that a description of one will suffice. There is no definite capsular thickening. The internal structure of the lymph-node is not yet lost, but is to a considerable extent obscured, owing to a loss of distinctness in the borders between the sinuses and the medullary cords and peripheral nodules. The germinal centers are large, and show numerous mitotic figures, yet there is a relatively narrow collar of lymphocytes about the center, but instead, the center shows many of the so-called large endothelial cells and they are present in numbers among the peripheral lymphocytes. The sinuses of the lymph-nodes are filled with cells of the endothelial type, and they are also scattered generally through the lymph-nodes in the lymph-cords. Mitotic figures are numerous in scattered cells of this type. Many of these cells have large vesicular nuclei with prominent nucleoli, and a nuclear diameter twice that of the nucleus of an ordinary endothelial cell. Some of the nuclei are lobed and some are double. The protoplasm is relatively scanty. These cells distinctly merit the designation of endothelial giant cells.

In addition to these changes there is, in the more central parts of the lymph-node, an increase in fibroblasts and a beginning fine sclerosis. Eosinophil cells are numerous throughout the lymph-nodes occurring singly and in groups. There is slight hyaline degeneration in places.

We have thus produced in the lymph-nodes of the monkey, a chronic lymphadenitis with atypical proliferation of the endothelial cells, a beginning proliferation of the stroma tissue, and a well-marked eosinophilic infiltration; also a periglandular sclerosis. Clinically, the animal's blood has shown an absence of polymorphonuclear leukocytosis after injection of the organism. An increasing percentage of mononuclear elements is found, particularly of the transitionals, an increase in eosinophils following a primary fall, and an early increase in basophils, all of which are characteristic of the early stages in Hodgkin's disease.[2] The blood-plates have also been numerous and large forms have been present.

With the picture in the lymph-nodes so similar to that of the early stage of Hodgkin's disease in the human being, and so different from an example of subacute lymphadenitis in the mesenteric lymph-nodes of a monkey which died of dysentery, and with the blood-picture showing the changes of human patients with the disease, we feel more assured of the etiologic relationship of the organism—which we have designated *Corynebacterium hodgkini*—to the disease.

2. Bunting, C. H.: Bull. Johns Hopkins Hosp., 1911, xxii, 369.

Diseases Without a Morbid Anatomy.—Now diseases without a morbid anatomy are notoriously unsatisfactory to deal with, and are apt to be classed offhand as "functional," from which it is but a short step to speak of them as due to a neurosis.—Robert Hutchison in *Clin. Jour.*

WHO IS RESPONSIBLE?

THE POSITION OF CHEMISTRY IN MEDICAL EDUCATION

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In an editorial in a comparatively recent issue of THE JOURNAL[1] the question is asked, Who is responsible for the lithia water fraud? This is but a special and relatively unimportant phase of an old problem, the responsibility for crude beliefs and medical frauds in general, but it seems a good text to point a lesson.

Faith in the superior efficiency of lithium salts as uric acid "solvents" dates back fifty years or more, and had its origin in the wrong interpretation of a simple chemical fact, but the absurdity of the claim has been many times shown, leaving quite out of consideration the well-known fact that most so-called lithia waters contain such minute traces of the element that the spectroscope is required for their detection. The scientific fallacy in the solvent doctrine was long since shown by physiologists studying the problem from the standpoint of the dissociation theory and the mass action laws. His and Paul,[2] especially, have contributed to the subject in their study of the solubility of uric acid and its salts, and their conclusions have passed into the general literature. Why are they and others not recognized? Who is responsible? The editorial in question answers that the responsibility rests with the medical profession, and refers the trouble back to the lack of proper instruction in pharmacology in the medical schools.

This explanation is only in a measure sufficient. Pharmacology has made wonderful advances in the last two decades and the methods of teaching the subject have correspondingly changed. I am inclined to think that much of this instruction is beyond the capacity of the student to follow, and this leads to the recognition of the real difficulty. The editorial truly says that in the understanding of the nature and action of drugs the student is often no better off than were the graduates of twenty or thirty years ago, but it does not go far enough in explaining the reason for this.

The medical sciences which have made the most notable advance in the last four decades are simply outgrowths of the new chemistry, or perhaps of the old chemistry plus a few new methods. This is emphatically true of pharmacology and the group of sciences based on bacteriology. I recall distinctly the first series of lectures given in the old Chicago Medical College (now Northwestern University Medical School) by Henry Gradle on the germ theory of disease. This was in 1882, and was probably the first formal presentation of the subject in the United States. The lectures were published in the following year and the book is still interesting reading. But how was it received then? Often with amusement, and it has taken medical men a long time to recognize that bacteriology is not, as far as their interests are concerned, a branch of morphology. Gradle and his "bugs" were often the subject of jokes, and the "bugs" were assumed to have about the same importance in the human body that other "bugs" have in injuring a tree by boring into it.

That bacteria are chemical rather than mechanical agents, and agents of great activity, is, of course, an elementary truth known to all real bacteriologists. In fact, their importance is almost solely from the chemical standpoint, and much of the new pathology has been reconstructed to accord with this view. The investigator knows all this, but how about the student? It must be confessed that the latter is often poorly equipped to follow the chemical side of bacteriology, which is the only side which offers any tangible explanation of the phenomena of importance to the physician. His chemical training is generally inadequate to enable him to get the full benefit from his studies in bacteriology.

If chemistry is fundamentally important in bacteriology it is no less so in pharmacology. The days of the morphologic study of crude drugs in the medical school (and the school of pharmacy, too) is rapidly passing, and fortunately so. Most of these things had little or no importance in medicine, but think of the time wasted on calamus and sarsaparilla, on cinchona bark and a hundred other things, the external characteristics of which gave no clue to their practical medicinal activity. The active principles of these drugs (when they have any value at all), or chemical synthetics, have taken their places; and here a knowledge of organic chemistry must help the student over some of his difficulties.

But just at this point the greatest mistake is sometimes made. How much of the instruction in chemistry of the medical school consists in learning formulas! I have known students to memorize the formulas for strychnin, quinin, morphin, albumin (!) and other bodies, thinking they were learning chemistry—students who at the same time were ignorant of the fundamental principles of combining proportions, mass action, valence or the simpler facts of organic synthesis.

As to what is the proper kind of chemistry for the medical school there have been various opinions, but I have maintained for years that, whatever the student may study in this science after entering the medical school, it is absolutely essential that he must be well grounded in elementary chemical theory, without which much of the work in organic chemistry, even, must remain meaningless. Without this foundation students are lame and remain helpless in all the subsequent work depending on chemistry. It is largely because of lack of acquaintance with the simpler principles that medical men often grapple with chemical problems which are quite beyond their power of solution. A man who is skilled in surgery is often able to duplicate a difficult operation from the knowledge gained by reading, but it does not follow that the same man can conduct a difficult chemical investigation in the same way. Yet such things are often attempted. There seems to be little appreciation of the length of time required for laying the chemical foundation.

A few years ago most of our leading medical schools adopted an entrance requirement which included elementary chemistry. Under this plan the work in chemistry in the medical school begins with organic, or, in some instances, with physiologic chemistry. This change was hailed as a great advance, but in practice it is somewhat disappointing. Students now bring to the medical school "credits" for chemistry, taken usually as an elective in some college. In theory this elective chemistry should be in advance of that usually given in the same field in the professional school, but as an actual fact this is often, perhaps usually, not the case. It is generally admitted that students in college do not work as hard as they did twenty or thirty years ago. College courses are now every-day affairs. I believe it is true that the average student carries away with him a smaller knowledge of chemistry than was the case with the boys who were

1. May 17, 1913, p. 1544.
2. His and Paul: Ztschr. f. physiol. Chem., 1900, xxxi, 1464; also Pharm. Ztg. at about the same date.

obliged to take the work at the earlier period, and this in spite of the vastly improved equipment of our laboratories. The elective system may be partly responsible for the change. Easy electives are fine things to make up "units" or "semester" hours. The trouble is also in part due to the fact that many of our college teachers, perhaps naturally from a sort of necessity, are far more interested in their researches than they are in the hard work of elementary instruction. There is plenty of "professoring," but much less good teaching.

So unsatisfactory is the present scheme that some of our medical schools are finding it necessary to restore part of the instruction in elementary chemistry dropped when the higher requirements were inaugurated some years ago. I believe all schools will be forced to do it to secure a better preparation in the foundation principles. All students entering the medical school should be required to repeat in a recitation course part of their elementary chemistry and cover such topics as valence, the gas laws, general reactions, mass action, vapor density, cryoscopy and the solution of a great variety of problems.

It is of course urged that the student is already overworked and cannot take on more. There is much truth in this and he should not take on more, but he can drop something to take work which is fundamentally far more necessary and important. I think it can be said without question that a very appreciable part of the time spent on anatomy might well be spent on something else which in the evolution of the medical school will be far more in demand. The foundation disciplines for the study of medicine are anatomy and chemistry, and of these anatomy is by far the older. In fact, there were great anatomists five hundred years ago, and the historical position of anatomy in the medical school has been maintained down to the present time. I, of course, do not question the supreme importance of anatomy as pure science and I have the fullest appreciation of and admiration for the brilliant work of investigators in this line, but a large part of this morphologic science has about as much direct bearing on questions of internal medicine as has modern astronomy, which is an outgrowth, through centuries, of astrology, the sister science of anatomy in the early Italian schools. The time given to anatomy in our medical schools is relatively, and possibly absolutely, much in excess of what is necessary. The superior importance of this branch has been preached so long that many people have come to believe it. But the excessive time given to anatomy is undoubtedly one of the weak spots in the present system.

Courses in anatomy are always far more popular than courses in chemistry. (The dazzling allurements of surgery may be at the bottom of this.) The work is comparatively easy in the one case and difficult in the other. But as the supreme importance is commensurate with the difficulty, the science which is at the foundation of so many other medical sciences must be learned, even if it be necessary to reverse the present absurd time relations of the two disciplines in our first-year and second-year curriculums. In my early teaching experience I was more than once given to understand, and sometimes by students as well as by colleagues, that about all the chemistry a medical man needed was enough to make a sugar or an albumin test. It would seem so. Chemistry was for years but a tolerated study. The men who held this view of the place of chemistry in the medical course, however, were the men who made the continued success of the proprietary medicine vender possible. Men with this half knowledge or no knowledge of chemistry have always been an easy mark for the glib-tongued medicine factory agent who has something to sell.

I come back to the question, Who is responsible? I say that the medical school is responsible in neglecting a proper training in that science which is absolutely necessary to the understanding of pharmacology as well as bacteriology or physiology. There must be a return to a better study of pharmacology, to a study of the things which have value in the cure of disease, but this study must be preceded by a much profounder study of the real foundation science bearing on problems of internal medicine. The chemistry of the medical school should be thorough enough to leave no excuse for a therapeutic nihilism on the one hand, or for the prescribing of therapeutic impossibilities on the other.

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VACCINATION WITH MIXED CULTURES FROM THE NOSE IN HAY-FEVER

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About four years ago I reported good results in treating ordinary colds with vaccines,[1] and I have successfully used the method as occasion arose since that time. This suggested a similar procedure with regard to hay-fever. Opportunity did not arise until the summers of 1911 and 1912, as detailed below. Since I am not in regular practice, only such persons as came voluntarily to be "experimented on" were available. Vaccines were prepared in the following manner:

Swabs similar to diphtheria swabs are rubbed over the nasal mucosa after the patient has first thoroughly blown the nose to remove dust and possible saphrophytes. The swabs were rubbed over the surface of large 19 mm. agar-slant tubes. Two slants are inoculated to avoid possible loss or lack of material. The tubes are incubated twenty-four hours. If little growth appears it is spread over the surface and incubated twenty-four hours longer. When, in either case, there is a heavy growth, this is rubbed off in normal salt solution, the growth from the two tubes is combined and the whole is diluted to 9 c.c. with normal saline. To this 1 c.c. of 5 per cent. phenol (carbolic acid) is added so that the material will contain 0.5 per cent. phenol when finished. The tubes are then heated in a water-bath at 60 C. (140 F.) for one hour to kill the organisms. The vaccine is now ready for use. The addition of the phenol before heating enables one to use lower temperatures for heating and thus diminishes the possibility of destroying the antigens in the organisms while still insuring the killing of the bacteria.

It will be noted below that the dosage is given in cubic centimeters or fractions instead of in numbers. I have been endeavoring for the past four years to find some method to determine the dose of a vaccine and have come to the conclusion that this is possible only from the results of the first vaccination. Organisms vary so much in virulence and patients so much in tolerance that dosage is a purely individual matter in each instance. Consequently vaccines are prepared of approximately the same strength and an amount is given the patient which he can apparently tolerate without inconvenience. Measurement in fractions of a cubic centimeter is the ordi-

1. Vaccine Therapy of Colds, Correspondence, THE JOURNAL A. M. A., May 1, 1909, p. 1439.

nary way of regulating the dose after the first in practice in any event, that is, when the vaccines are standardized as to numbers.

CASE 1.—The patient, a university graduate and a high-school teacher, aged 23, had had "hay-fever" regularly the past five or six years. It began usually about the end of July, and lasted until two or three weeks after a heavy frost. July 30, 1911, 1.6 c.c. of vaccine were injected. No local or constitutional effect from the injection was noted. August 6 the patient reported that he *had not sneezed since the vaccination, and nasal discharge had been practically absent;* 1 c.c. of the original vaccine was injected as a second dose. During the following week the patient went on duty from 6 a. m. until 11 a. m. daily, as ticket-seller at the local driving park. The air in the ticket-booth was foul from its incidental use as a privy, and the food furnished was so poor that it could not be eaten, so that the patient said he "lived on watermelon and buttermilk." He had attacks of sneezing each morning, though little during the day. August 14, only 0.2 c.c. of a new vaccine was injected but with no noticeable effect. August 18, 0.6 c.c. of the same vaccine used which had a slight effect. August 22, 1 c.c. was injected by the patient's uncle, a physician, which gave relief for twenty-four hours only. August 28, 1 c.c. of a new vaccine was given and the patient removed to a city on Lake Erie to begin high-school work. He was convinced that he had been better than for any of the past five years. He reported in the fall of 1912 that for the past summer (not under treatment) his attacks had been scarcely one third as bad as normal.

CASE 2.—The patient, a university professor, had typical "hay-fever" for the past five or six years. It began usually about the middle of August, though this year he had been sneezing since July 1. Aug. 10, 1911, 1.3 c.c. of vaccine was injected. The dose was too large, and the reaction was severe and kept the patient in bed until the next afternoon. He did not sneeze once until the 13th. August 14, he reported that he had sneezed five or six times on the 13th and 14th, but "nose had not run since the 10th." August 16, a second vaccine was made and only 0.3 c.c. injected; the effect was only slight, and 0.4 c.c. was given August 18. From this time on the patient had so little trouble that he did not consider further vaccination necessary. He "enjoyed being in the dust where buildings were being razed [he is an architect], and sitting among the vines on his porch," which had been impossible before owing to the paroxysms. During the summer of 1912, he did not suffer enough from hay-fever to believe it worth while to be vaccinated.

CASE 3.—The patient, an agent, had hay-fever for twelve years. For the past five years he had gone to Duluth to remain from August to December to escape, though in 1911 he had a slight attack while there. Aug. 12, 1912, 0.7 c.c. was given with practically no results. August 16, 1.2 c.c. was given with practically no results up to August 27, when 1.2 c.c. of a new vaccine was given. August 31, the patient reported a good effect to date and little sneezing. September 12, 1 c.c. was given. The patient reported no hay-fever since the last vaccine. No further vaccination was given. October 12, he reported that he had no more hay-fever.

CASE 4.—The patient, a lawyer, had had hay-fever for eighteen years, and asthma the past few years with it. Aug. 13, 1912, 0.8 c.c. was given with no reaction, and no sneezing up to August 16, when the second dose, 1.2 c.c., was given. August 30, the patient reported great relief the past two weeks, with practically no hay-fever. There was no effect on the asthma. August 31, 1 c.c. of new vaccine was given and none since, as he has had no hay-fever.

CASE 5.—The patient, a business man, had had hay-fever for years. Aug. 25, 1912, 0.4 c.c., a small preliminary dose, was given, with slight effect. August 29, 1 + c.c. was given. The reaction was severe, so that the patient felt "out of sorts" for about two days; but the nose cleared up and all symptoms disappeared, and the patient had no further hay-fever, as he reported in November.

CASE 6.—The patient, a lumber-dealer, had hay-fever for five or six years. Aug. 31, 1912, 1 c.c. was given and the patient left the city. Vaccine was sent to his physician and he administered the second dose, September 6. I have only the patient's statements as to the effects. "The first vaccination (Saturday, August 31) was followed by 2 degrees of fever and a chill that evening, a slight one the following evening. Felt like taking the grip. Feverish Sunday, but better Monday. Next three days felt about like one with a cold. Second vaccination followed by much the same effects, but not so pronounced. About like one with a cold the next week, sneezed a little and some nasal discharge, but not the 'hot kind.' Felt better than since had hay-fever, about six years."

CASE 7.—The patient, a bookseller, had had hay-fever for thirty-three years. Sept. 3, 1912, 1.2 c.c. of vaccine was given. The patient reported that the nose had dried by the following day and his "necessary handkerchiefs had dropped from about twelve per day to none" for hay-fever purposes. September 7, the second and final vaccination was given, as the patient had no further attacks.

CASE 8.—The patient, a Cornell University student, aged 21, had had hay-fever during the past twelve years, and asthma with it the past three years. It lasts from about the second week in August to the end of September. Sept. 11, 1912, the first vaccine was given, and material was sent to the patient, who was given a second injection, September 17. A letter from the patient dated the 17th reported the "head fairly clear, and felt much better," but no further information was received from him or his physician.

The cases are few, but are certainly interesting, especially Cases 3, 4, 5 and 7, in which the patients were under my personal observation in 1912, as were the patients in Cases 1 and 2 in 1911. The satisfying results of these two led to the continuation of the work in 1912, and the experimental vaccination was an excellent guide to procedure. It appears of promise, also, that these two were much better in 1912, though they took no treatment.

I have made no attempt to discover any "specific germ" of hay-fever and do not believe that it exists. The theory on which the work was based was the strengthening of the nasal mucosa, so that the irritants, whatever they are, would be without effect.

THE CEREBRAL FORM OF PERNICIOUS MALARIA *

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Cerebral malaria is a form of pernicious malaria, the etiologic factor being the estivo-autumnal parasite, that is, the crescent-forming hemameba. The fevers caused by the estivo-autumnal parasite are characterized by some main group of symptoms depending on which organ of the body participates mostly in the infection, in other words, the organ that is affected; for the malarial parasite of this type can attack any organ in the body and give rise to symptoms characteristic of involvement of that particular organ; for example, if the liver is involved we have bilious symptoms, if the brain, cerebral symptoms, and so on. This is the most important point to remember, for we can readily see that pernicious malaria may simulate any disease and lends emphasis to the necessity of a blood examination for the malarial parasite in all cases in which the diagnosis is obscure.

* Chairman's article before the Section of Practice of Medicine at the 1913 Session of the Medical Society of the State of North Carolina, held at Morehead City, N. C., June, 1913.

The symptomatology of cerebral malaria is most varied and complex; the disease may simulate any organic disease of the brain and, in some cases, the resemblance is so exact that a proper diagnosis rests on the blood examination. As a rule the clinical picture is dominated by a well-defined group of symptoms and on this basis we may divide cerebral malaria into the following types: (1) comatose; (2) motor irritative; (3) motor depressive.

Coma is a symptom of all the types, the associated symptoms varying with the different types. As a rule cerebral malaria does not occur with the first paroxysm but is preceded by several. Its onset is always sudden, occurring with startling swiftness.

COMATOSE TYPE

This is by far the most frequent. The coma is the cardinal symptom; it may be of varying duration and intensity; it may last a few hours or several days. As a rule it is quite pronounced, there being no response to stimulation. A characteristic of the coma is fibrillary twitching of the muscles of the extremities; the eyes are closed, the lids being resistant to elevation, eyeballs rotated upward, the pupils equal, usually dilated but sometimes contracted. The pulse may be either fast or slow, respirations as a rule being stertorous but in some cases shallow and rapid. The temperature is high, varying between 103 F. and 105 F. The coma usually subsides with diaphoresis, but in some cases it does not; instead being more pronounced until death, which usually results from pulmonary edema.

The following case well illustrates the comatose type:

CASE 1.—Mrs. X, aged 53, was seen at 7 p. m. on the night of October 9. She was in a profound coma, respirations 25 and stertorous, pulse 140 and weak, skin ashy in color and dry, eyes closed, the balls were rotated upward and moving slightly, pupils equal, slightly dilated and reacting to light; temperature by rectum was 103 F. The coma was profound, the patient not responding to any form of stimulation.

The following history was obtained from relatives:

For the past six weeks she had been ill, first suffering from gall-stones, and for the past two weeks had been treated by an osteopath, a diagnosis of nephritis having been made by him. On close questioning it was learned that on alternating days she had been having a feeling of coolness followed by nausea, vomiting and an elevation of temperature. On diaphoresis the symptoms subsided, undoubtedly being malarial paroxysms which were unrecognized. At noon the day that I was called to see her, she had another of these paroxysms, soon after became unconscious, the coma being quite profound when I saw her at 7 p. m. A specimen of urine obtained by catheterization showed the findings of a febrile albuminuria, there being a slight amount of albumin and no casts. A blood examination revealed numerous malarial parasites of the estivo-autumnal form, most of them being extracorpuscular.

At 5 p. m. she was given hypodermically 12 grains of quinin and urea hydrochlorid, also 1/40 grain of strychnin; at 11 p. m. 6 grains more of quinin hypodermically was given. At midnight she showed signs of regaining consciousness; at 1 a. m. she had completely aroused and the convalescence from then on was uneventful, there being no return of symptoms. Her treatment consisted of 6 grains of quinin hypodermically every three hours for seventy-two hours, 20 grains of calomel during the first twenty-four hours; the remainder of the treatment consisting of tonics.

This case was interesting because it closely resembled uremia, the differentiation being based on (1) urinary findings, (2) blood examination, (3) history of previous malarial paroxysm, (4) pupils being dilated.

MOTOR IRRITATIVE TYPE

While the motor symptoms predominate, coma is also a symptom. The motor symptoms may vary from twitching of the muscles to clonic convulsions and may simulate uremia, hysteria or tetanus. The following case so closely resembles hysteria that at first that diagnosis was made:

CASE 2.—Mrs. B.'s housegirl, a negress aged about 21, was found unconscious in the living-room where a few minutes before she had gone to do housework. When I arrived the girl was lying on the floor profoundly unconscious, muscles rigid, eyes closed, lids resistant to opening, pupils dilated but responsive; the pulse was 120. The least stimulation of the skin caused clonic convulsions, each convulsion lasting from five to twenty seconds. No history was obtainable and the patient was removed to the hospital. It was impossible to take temperature by mouth or rectum because of the clonic and tonic spasms; for the same reason attempts at catheterization were a failure. Morphin ¼ grain was given hypodermically and during the night ½ grain more was given because of the continuance of the motor symptoms. The condition remained the same until the following afternoon at 5 p. m., when the patient became somewhat relaxed. Her temperature was then taken by rectum and found to be 102 2/5 F., pulse 140, weak and intermittent; a blood examination revealed the estivo-autumnal parasite, and the condition was now recognized as cerebral malaria. At 6 p. m. the patient was given 12 grains of quinin hypodermically and thereafter 9 grains every four hours; 4 drops of croton oil also was given. The following morning she aroused from the coma, the temperature was normal, and on being questioned she stated that she had been having chills for the previous two weeks. She made a rapid and uneventful recovery.

MOTOR DEPRESSIVE TYPE

This form may present paralysis of the monoplegic, paraplegic or hemiplegic type, the paralysis usually commences and subsides with the paroxysm. This form of cerebral malaria is extremely rare and very few cases have been reported. Landouzy states that he has only been able to collect twelve cases in all the literature. The following case is of the hemiplegic type, the hemiplegia lasting for forty-eight hours:

CASE 3.—Mrs. P., aged 65, an unusually well-preserved and active woman, had a chill on June 12 and another on June 14. I saw her on this day. She responded to treatment and was afebrile on the 15th, but the next day at noon she had her third chill. At 4 p. m., when I saw her, the temperature was 103 F., pulse 90 and full. She was confused, her speech was thick and slurring, and by 8 p. m. she was profoundly comatose. There was complete flaccid paralysis of the right side of face and body, knee-jerk on the right side being exaggerated, breathing stertorous and 18 per minute, pulse bounding and 74. The eyes were closed, pupils contracted, eyeballs deviated toward the left, rectal temperature was 104 1/5 F. A blood examination revealed malaria plasmodia. Quinin 6 grains was given hypodermically every four hours. The following day the condition was practically the same, but by night the patient had responded slightly from coma. Her paralysis gradually subsided and forty-eight hours after onset it had completely disappeared. The quinin was continued hypodermically for four days. Mental confusion remained for four weeks. This was a most interesting case and the diagnosis rested between cerebral malaria and cerebral hemorrhage due to rupture of a vessel as a result of the elevation of blood-pressure produced by the paroxysm. The rapid response to quinin and complete disappearance of the hemiplegia in forty-eight hours, there being absolutely no sequelae, show conclusively that the case was cerebral malaria.

In the majority of cases all mental symptoms disappear with the subsidence of the paroxysm; but in a few, symp-

toms of confusion remain for some time. In Case 3 symptoms of confusion remained for four weeks. At the last meeting of the Southern Medical Association, Dr. L. A. Green of Jacksonville, Fla., stated that the records of the State Hospital of Florida show a number of cases of patients admitted as insane whose condition was due to cerebral malaria and responded to quinin medication. This I readily believe, for I was so fortunate as to see in consultation with Dr. R. D. V. Jones of Newbern, N. C., a case of cerebral malaria in which symptoms of confusion lasted for over two months. This patient had hallucinations of sight and hearing and illusions of the same senses and at times was in a state of grandeur. So it should be recognized in malarial districts that cerebral malaria is a possible etiologic factor in all acute mental conditions.

CONCLUSIONS

1. Cerebral malaria may assume the form of any brain disease.

2. It is practically never due to the first paroxysm but to succeeding ones and by energetic treatment of the first paroxysm it may be prevented.

3. The specific action of quinin hypodermically and that the drug must be given for effect—the dose usually being 9 to 12 grains every four hours.

4. Cerebral malaria is a frequent disease in malarial districts.

201 Elks Temple.

CASE OF STAB WOUND OF THE HEART, OPERATION AND RECOVERY

SAMUEL BRADBURY, M.D.
Assistant Attending Physician, New York City Hospital
NEW YORK

An Italian woman, aged 44, was brought to the Pennsylvania hospital at noon on April 18, 1909. She had been stabbed in the chest about ten minutes previously. Examined immediately on admission. She was unconscious, very pale, the skin was moist and cold, there was slight dyspnea and no pulse could be felt at the wrist. A wound 1.5 cm. long was present over the second left intercostal space about 5 cm. from the sternal edge. The heart sounds could be heard faintly, were rapid and slightly irregular, but no adventitious sound was heard. The breasts were lactating and full. The outline of cardiac dulness was not determined. Ether, 25 minims, then 1/20 grain of strychnin were given hypodermatically at once, and a very feeble radial pulse could then be palpated, rapid and slightly irregular. The diagnosis was wound of the heart.

Operation was started at 12:50 p. m. A curved incision was made about the inner border of the breast from the second to the fifth rib, and skin, breast and muscles reflected outward. The wound was then seen to enter the thorax through the fourth left intercostal space about 3 cm. from the edge of the sternum. The third and fourth ribs were divided at the costochondral junction and at the chondrosternal articulation and were turned inwardly over the sternum. The pleural cavity was opened freely by this procedure and it was noted that it contained only a small amount of blood. The internal mammary artery was ligated above. A wound 5 cm. long in the precordial fat and pericardium was enlarged by tearing, releasing a quantity of blood and blood-clots which gushed out under considerable tension. The pulse improved immediately and was then noted to be 80, regular and fairly full. The heart wound was about 3 cm. long, crossing the anterior interventricular groove diagonally from above and to the left, to below and to the right about midway between the apex of the heart and the auriculoventricular groove, a little more than half of the wound lying over the right ventricle. A column of dark blood spurted out with each systole. Six or seven linen thread sutures closed the wound, one of them catching the cut left descending coronary artery. Some clots lying behind the heart were scooped out with the fingers, and as there was no further bleeding the pericardium was closed, using a continuous catgut suture. A rubber drainage-tube was inserted through the left ninth intercostal space into the thoracic cavity and sutured in place. About a liter of blood was drained out, most of it having come from the pericardium. The ribs and intercostal muscles were sutured with catgut, the pectoral muscles with catgut and the skin with silkworm-gut. A small gauze drain was inserted into the outer stab wound. The operation was finished at 1:55 p. m.

The anesthetic was ether, 2½ ounces by the open drop method. It was started at 12:45 and stopped at 1:45 p. m. The patient was then given ¼ grain morphin sulphate, 1/150 grain atropin sulphate hypodermatically, and 8 ounces of normal saline solution slowly by rectum.

The blood examined during operation showed hemoglobin 75 per cent., red blood-cells 4,842,000 and leukocytes 19,400.

The patient was quite comfortable, with a temperature of 100 and a pulse of about 100 until the fourth day. Then there was a sudden increase in the pulse-rate to 140, great restlessness, some dyspnea, a marked engorgement of the cervical veins and a dilatation of the left pupil. These symptoms were thought to be due to a pericardial effusion. The fifth day the venous engorgement and dyspnea were much lessened, and on the sixth day a large amount of fluid was removed from the chest after the drainage tube had been removed, the sinus opened up and the tube replaced. Until the fourteenth day the breasts required stupes and massage. On the thirty-second day, the second day in a chair, the patient had a sudden attack of cyanosis and marked dyspnea, which lasted only five or ten minutes, and was relieved as soon as she lay down. This attack may have been due to an embolus, but there were no other symptoms. On the forty-second day a consolidation developed in the upper lobe of the left lung. She ran a high remittent temperature for five days, then it fell to normal and the cough and all the signs in the lung cleared up.

She was discharged on the ninetieth day, easily able to get around by herself. Her pulse-rate was 88, heart was in its normal position, and the heart sounds were of normal character.

A representative of the Pennsylvania Hospital Social Service Department visited her in April of this year and reports that she looks perfectly well, and is doing her own housework. She has a little dyspnea on climbing stairs, but never any cardiac pain or edema. Her pulse is 64, regular and of good volume.

There are two points of interest in this case. First was the marked heart tamponage with the immediate and marked improvement in the rate and character of the pulse when the pericardium was opened. The second interesting feature was the division and ligation of the left descending coronary artery. In the several lists of cases[1, 2] published, this complication is noted in six; this case is the seventh. The cases are those of Cappelen, Pagenstecher, Vince, Foramitti, F. T. Stewart's first case, and one of those in the series of twenty-one reported by E. Hesse. Three of the seven patients died within three or four days of operation, four have recovered. Hesse's patient was well eighteen months after operation, the woman reported in this paper is well four years after operation. Stewart's patient worked for five years as a janitor, handling heavy boxes, and finally died of pulmonary tuberculosis. The detailed necropsy report is given in his recent paper,[3] and showed quite an exten-

1. Pool, E. H.: Ann. Surg., 1912, lv, 500.
2. Peck, C. H.: Ann. Surg., 1909, l, 100.
3. Stewart, F. T.: Five Cases of Suture of the Heart, Ann. Surg., July, 1913, p. 67.

sive myocarditis and the wall of the ventricle was very thin at one place.

These cases would seem to be of considerable interest in view of all the recent clinical and experimental work that has been done to prove that the coronary arteries are not end arteries, as was at one time supposed.

680 Madison Avenue.

A PRELIMINARY NOTE ON SPIROCHAETA PALLIDA AND LIVING TISSUE-CELLS IN VITRO *

EDNA STEINHARDT, M.D.
NEW YORK

Having successfully applied Harrison's method of tissue growing *in vitro* to the cultivation of the virus of vaccinia,[1] we have here tried the same method with the *Spirochaeta pallida*. In the present experiment the organisms used were from a culture obtained from Dr. Noguchi. He has kept it growing for some length of time and states that it has lost most of its virulence.

Hanging-drop preparations were made of small pieces of the testes of the rabbits inoculated with spirochetes, to which rabbit plasma was added. The preparations were incubated at 37 C. (98.0 F.). Before incubation preparations examined in the dark field did not show spirochetes nor did those examined during the first few days of incubation. Evidently very few spirochetes were inoculated. The cells of the testes, however, showed a good growth.

After incubation for twenty-five days examination with the dark field showed many organisms. These were extremely motile. Short forms found strongly suggested multiplication of the organism and not merely a survival of the original inoculation. The early negative examinations would also suggest a multiplication.

The organisms were inoculated into the testes of a rabbit and the virulence will be reported later. It seems possible by this method of growing avirulent cultures with living cells and transferring them to fresh cells to restore their pathogenicity. This would be in line with the increase of virulence found in bacteria submitted to the action of immune serum. Further experiments are now being made in this direction and also on the direct inoculation of spirochetes from syphilitic lesions.

Research Laboratory, East Sixteenth Street.

THE PREPARATION OF ALBUMIN MILK IN THE HOME

JULES M. BRADY, B.S., M.D., ST. LOUIS
Assistant Professor of the Diseases of Children, St. Louis University School of Medicine

The value of albumin milk as a therapeutic agent in the nutritional disturbances of infancy has been fully established. The difficulty of its preparation has curtailed its use very much.

The original directions for its preparation called for a quart of sweet milk brought to the boiling point, allowed to cool to 100 F. and then curdled with a tablespoonful of essence of pepsin. The whey is drained off and the curds suspended in a muslin bag for two hours. The curds are then passed through a hair sieve by gentle pressure with a large spoon or potato masher adding at the same time a pint of fat free buttermilk. Boiled cool water is then added to bring the whole up to one quart. The preparation is then ready for the addition of from 1 to 5 per cent. of maltose and dextrin.

The main difficulty is in getting the curds to pass through the sieve. In our institution we prepare from 10 to 15 quarts a day. This formerly was a huge task and would consume anywhere from one-half to two hours. And still the product could not be considered ideal. As the result of mashing the curds through the sieve, the fat separates out in the form of butter and your infant is robbed of many calories that he ought to be getting. Recently some have the curds prepared from skim-milk instead of whole-milk. This in some instances might be desirable but in a large group of infants we desire the mixture to contain fat.

METHOD

At St. Ann's Infant Asylum we have found a method of reducing very much the time and labor. The following are the directions in detail:

1. Bring a quart of sweet whole-milk to the boiling point; raw-milk is not used as its curd is much tougher.
2. Cool to 100 F.
3. Add one tablespoonful essence of pepsin and allow to curdle.
4. Pour off the whey and suspend curds in muslin bag two hours.
5. Stand bag containing curds in 8 ounces boiled cool water for one hour. This is very important and is the secret to the success we have had in the preparation of this food.
6. Remove the bag from the water, allow as much water to drip as will and place curds in sieve.
7. Add pint of fat-free buttermilk to sieve containing curds, and stir; it will be found that the curds will pass through in two to three minutes, which must be repeated three or four times.
8. Turn the bag inside out and return to the 8 ounces of water so as to obtain all the curd.
9. Pour in the sieve the 8 ounces of water which was used to soak the curds.
10. Add enough water so that the whole measures a quart.
11. Add the percentage of maltose-dextrin desired and put on ice.

We are able to prepare 10 quarts of this food after the curds have drained and soaked in less than ten minutes with the minimum separation of the fat.

1467 Union Avenue.

A CASE OF ANEURYSM OF AORTA RUPTURING INTO THE VENA CAVA

ORLANDO H. PETTY, M.D., PHILADELPHIA
Instructor in Medicine, Jefferson Medical College; Pathologist and Assistant Physician to St. Timothy's Hospital

History.—D. S., bachelor, aged 70, 6 feet in height, weight 220 pounds, with negative family history, denying syphilis, had never been ill until several months previous to the time I first saw him, Feb. 21, 1911. During those months he became short of breath and had pain in the front part of his chest when climbing the hill to his home and had been treated for asthma. When I first saw him he had severe pains in his chest and was so short of breath that he could not walk across his room. He was chiefly anxious because his eyelids, face and hands were swollen, and his tongue seemed thick.

Examination.—Patient was dyspneic, his face, neck, arms and upper part of his chest swollen and cyanosed, with edema over the exposed bony surfaces. The external jugular veins were full, but no pulsation could be detected. Superficial veins of upper chest were plainly visible. The rest of the body was neither edematous nor cyanotic. There were no visible pulsations. There were distinct diastolic shock over great vessels at base of heart, and heart dulness on the right at the right edge of the sternum and on the left at the midclavicular line in the second interspace and 2 cm. outside of midclavicular line at the fourth interspace. Apex beat was

* From the Research Laboratory, Department of Health, New York.

1. Steinhardt, Israeli, and Lambert: Jour. Infect. Dis., 1913, xiii, 294.

at sixth interspace 2 cm. outside of midclavicular line. There was also a distinct dulness from third rib at right sternal margin extending almost to right midclavicular line, thence upward to second rib, and then slightly upward and inward, crossing first interspace at right sternal border and extending entire width of sternum. No other pathologic dulness was discovered over chest. Liver was enlarged and tender. There was no adenitis.

A to-and-fro systolic murmur was heard over precardia, also over dull area to right of sternum, being louder at this point. Heart sounds were weak; no valvular lesions could be definitely diagnosed. Systolic pressure was 136, diastolic 110, the same in right and left arms.

February 22: Patient complains of fulness of throat, and tongue seemed thicker. The swelling and cyanosis noted the day before were more marked.

A prominent clinician, who had seen two similar cases, one a case reported by Pepper and Griffith, the other his own reported in 1906, saw this case with me and agreed with my diagnosis of aneurysm of the arch, rupturing into the superior vena cava. There were no marked changes in the patient's condition until February 28, when the physical signs had changed and the distressing symptoms were greatly diminished. The dull area was much smaller and the to-and-fro murmur had disappeared. Within the next two or three days the cyanosis and edema also disappeared, which suggested the need of a revised diagnosis. Because of the previous classical symptoms, however, I was unwilling to give up my diagnosis of this rare condition, regarding the changed signs and symptoms as being due to closure of the perforation by the formation of a blood-clot.

The patient died March 8, 1911, just fifteen days after I first saw him, and I received permission to open the chest. This revealed a fusiform aneurysm involving the ascending and horizontal parts of the aorta, the maximum diameter being at the junction of these two portions. This diameter is 7 cm. The aneurysm terminated immediately beyond the origin of the left subclavian.

The inner surface of the wall of the aneurysm was in general fairly smooth, although almost uniformly covered by atheromatous plaques, only a part of which were calcareous, a few of the latter form slight elevations on the wall.

At the posterior portion of the aneurysm where the diameter is the greatest, there was a secondary saccular dilatation. This was 3 cm. in diameter, almost circular in outline, and was 2 cm. in greatest depth. This sac was filled with a laminated blood-clot. The bulging of this secondary sac was directly in the line of the superior vena cava, which was carried distinctly backward and to the right at this point.

Slightly to the right and center of this sac was a nearly circular perforation, 5 by 6 mm. in extent, into the superior cava. Viewed from the caval surface this opening was near the margin of a slightly elevated and thickened grayish-yellow area 1.2 cm. in diameter. The point of perforation was directly on a level with the opening of the vena azygos major and 1 cm. from it. The perforation was 3 cm. from the junction of the right subclavian and innominate veins and 7 cm. from the aortic valves. This opening, which formed communication between the aorta and the cava, was completely closed by the blood-clot that filled the secondary aneurysmal dilatation as described before.

The necropsy findings therefore substantiated the diagnosis of aneurysm of the aorta with rupture into the superior vena cava. The changes in physical signs and symptoms six days before death were also fully explained by the blood-clot which closed the perforation.

6215 Ridge Avenue.

Tuberculosis of the Kidney.—It is now generally admitted that tuberculosis starts by attacking one kidney, that spontaneous cure of a tuberculous kidney does not occur, and that the only hope of saving the life of the patient rests on an early recognition of the disease and a speedy removal of the infected organ.—David Newman, M.D., *Glasgow Med. Jour.*

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

STREPTOCOCCUS VACCINE.—See N. N. R., 1913, p. 226.

Abbott Laboratories (The Abbott Alkaloidal Co.), Chicago.

Antistreptococcic Vaccine (Scarlatina Prophylactic).—This product is marketed in three ampules containing respectively 250 million, 500 million and 1 billion killed streptococci.

Strepto-Bacterin (Scarlatina Bacterin) Polyvalent.—This product is marketed in six ampules each containing 100 million killed streptococci.

SILK PEPTONE "HOECHST."—Silk Peptone "Hoechst" is a preparation of peptone derived from silk and standardized to a nearly uniform optical rotatory power.

Silk peptone is prepared from silk waste as follows:

The material is dried at 100 C. for forty-eight hours and then treated with from 3 to 5 times its weight of 70 per cent. sulphuric acid and allowed to stand for four days. It is then diluted with ten times its volume of water cooled by ice. The sulphuric acid is neutralized with barium hydroxid and filtered through charcoal. The residue on the filter is repeatedly stirred with warm water (25 C.) and decanted, or it may be washed thoroughly with boiling water.

The filtrates are concentrated at a temperature not above 40 C. The thick liquid, which must be free from barium and sulphuric acid, is poured with constant stirring into absolute alcohol which precipitates the silk peptone. Care must be taken that the alcohol is renewed at intervals so as to maintain the proper strength for precipitation. The yield with careful technic amounts to 20 to 30 per cent. of the products used.

Silk peptone is a white or yellowish powder, easily soluble in water, but not hygroscopic. The aqueous solution has a slight acid or amphoteric reaction. Its concentrated solutions are practically colorless and thus adapted for use in optical methods. It also possesses a high content of tyrosin.

Actions, Uses and Dosage.—Silk Peptone "Hoechst" is not employed therapeutically. It is used for the detection of peptolytic ferments either by changes in optical activity or by the precipitation of tyrosin. It is also valuable as an addition to culture mediums for the differentiation of bacteria.

For use silk peptone is dissolved in water, or in testing stomach conditions it may be dissolved in the filtered contents. The solutions must be clear and entirely neutral; if acid, they must be neutralized with sodium bicarbonate or magnesium oxide. If it is desired to keep a solution for some time, it should be covered with a layer of toluene.

(1) *To Test for Peptolytic Ferments in the Tissues.*—A small piece of the organ to be examined is introduced into a solution of silk peptone (25 per cent.), covered with a little toluene, and placed in the incubator. After a short time, if peptolytic ferments are present, a more or less abundant separation of tyrosin crystals takes place. In a similar way liquids may be tested for peptolytic ferments by mixing the clear filtrates with the silk peptone solution.

(2) *To Examine Stomach Contents for Peptolytic Ferments.*—5 c.c. of the stomach contents should be neutralized with magnesium oxide and filtered. To the filtrate 0.2 gm. of silk peptone are added. The mixture is incubated and examined at intervals of thirty minutes for a possible separation of crystals (tyrosin). If this occurs, the presence of peptolytic ferments may be assumed; to confirm this assumption a test for tyrosin should be applied.

(3) *The Optical Method.*—The material to be examined should receive the proper preliminary treatment, mixed with a solution of silk peptone and placed in a polarimeter tube, covered with some toluene, and the optical rotation immediately determined. This is repeated at intervals of several hours for about two days, the mixture being placed mean-

while in the incubator. If a change in optical rotation occurs, while the control solution retains the original degree of rotation, the presence of peptolytic ferments may be assumed.

Manufactured by Farbwerke vorm. Meister Lucius & Bruening, Hoechst a.M., Germany (Farbwerke-Hoechst Co., New York). No U. S. patent or trademark.

Therapeutics

ORAL CLEANLINESS

(*Concluded from page 1719*)

MOUTH-WASHES AND GARGLES

There are perhaps fifty mouth-washes on the market. They are all more or less similar in their composition, more or less multiple in their constituency, and more or less expensive, and represent more or less enormous profits to their owners. A number of pharmacopeial and National Formulary preparations have been developed to meet the need for mouth-washes and also to imitate some of the proprietary preparations. A few of these formulas will be considered to see what is the need for so many ingredients and what is really the value of the various preparations.

Such polypharmacy as this is absolute nonsense. As in many pharmaceutical preparations, the value of the really useful ingredients is obscured by the useless shrubbery and weeds which surround them. A dash of this and a dash of that in these mouth-washes or gargles is simply playing to the galleries. Although it may seem a waste of time to criticize these simple and more or less harmless preparations, still, with the now recognized importance of oral cleanliness, it is as necessary to analyze our methods of procuring oral cleanliness as it is to note the efficiency of fumigation, and much of the latter is a delusion and a snare.

The following are a few of the mouth-washes most used:

LIQUOR ANTISEPTICUS ALKALINUS, N. F.

Potassium bicarbonate	3.2
Sodium benzoate	3.2
Sodium borate	0.8
Thymol	.02
Eucalyptol	.02
Oil of peppermint	.02
Oil of wintergreen	.04
Tincture cudbear	1.6
Alcohol	6.0
Glycerin	25.0
Talcum	1.0
Water, ad	100.0

This preparation is very similar to the much-advertised Glycothymoline. The proprietary preparation of Borolyptol is quite similar to this alkaline antiseptic solution, with the coloring matter omitted, and contains 8 per cent. of alcohol.

LIQUOR ANTISEPTICUS, U. S. P.

Boric acid	2.0
Benzoic acid	0.1
Thymol	0.1
Eucalyptol	.025
Oil of peppermint	.05
Oil of wintergreen	.025
Oil of thyme	.01
Alcohol	25.0
Talcum	2.0
Water, ad	100.0

This preparation is very similar to the long-advertised Listerine. The proprietary Euthymol is also very similar.

The Liquor Antisepticus can be made for about ten cents a pint and the Liquor Antisepticus Alkalinus for about five cents a pint. The profit on similar proprietary preparations may be readily estimated.

LIQUOR SODII BORATIS COMPOSITUS, N. F.
(Dobell's Solution)

Sodium borate	1.5
Sodium bicarbonate	1.5
Phenol (carbolic acid)	0.3
Glycerin	3.5
Water, ad	100.0

The much-used so-called Seiler's tablets may be offered in several formulas. The following is one of them:

Sodium bicarbonate Sodium borate Sodium chlorid, āā	ʒ 84
Sodium benzoate Sodium salicylate, āā	ʒ 3½
Eucalyptol Thymol, āā	ʒ 3½
Oil of wintergreen	ʒ 1

Of this mixture each tablet should represent 15 grains.

The proprietary preparation of Alkalol is believed to contain the following ingredients:

Boric acid	0.8
Sodium borate	2.5
Sodium bicarbonate	0 8
Sodium chlorid	0.8
Eucalyptol	.06
Oil of wintergreen	.06
Oil of spearmint	.04
Oil of thyme	.02
Camphor water	.4
Alcohol	5.0
Burnt sugar	9.8
Water, ad	100.0

The proprietary Formolid has about the following formula:

Acetanilid	2 grains to the ounce
Alcohol	15 per cent.
Boric acid	2 per cent.
Boroglycerid	1 per cent.
Sodium benzoate	0.5 per cent.
Formaldehyd	0.25 per cent.
Eucalyptol, thymol, menthol, oil of wintergreen.	

Mucol powder is about as follows:

Sodium borate	12.0
Sodium chlorid	12.0
Thymol	0.4
Camphor	0.2
Oil of wintergreen	0.125
Eucalyptol	0.2

Kolynos is stated to contain the following:

Alcohol	21.8
Calcium carbonate	20.5
Soap	26.0
Saccharin	.50
Benzoic acid	2.50
Oil of mint	2.25
Thymol	.25
Oil of eucalyptus	2.0
Glycerin	24.2

Reference to the foregoing formulas shows that the aim is more or less antiseptic, and that the preparations are more or less alkaline and demulcent, with more or less modification of the taste, and some coloring matters of unimportance. The antiseptics used are alcohol, glycerin, salicylic acid, boric acid, sodium borate, benzoic acid, thymol and, in the one instance of Dobell's solution,

phenol. Of course there can be no question of the antiseptic action of phenol in a 0.3 per cent. solution.

The antiseptic action of alcohol and any possible astringent action is more or less negligible, except in the Antiseptic Solution and the preparations that are similar to it, and in the Kolynos, in which the amount is from 21 to 25 per cent.

The only preparation mentioned containing salicylic acid is Seiler's tablet, which contains sodium salicylate in very small amount.

The antiseptic and demulcent action of glycerin varies of course entirely with its percentage.

All of these preparations contain boric acid or sodium borate. The action of these drugs in the strength used is very mildly antiseptic, and they are very weak antiseptics even when undiluted. They are more or less soothing to mucous membranes, and more or less stimulant to the flow of mucus.

Several of the preparations contain sodium chlorid. This of course is simply soothing to mucous membranes in the solution presented.

Sodium bicarbonate is alkaline and soothing and promotes mucous secretions.

Benzoic acid, or benzoate of sodium, appears in some of them, and is very mildly antiseptic and has a pleasant odor.

Thymol is an antiseptic, but not of much value in the strength presented, and is disagreeable.

Eucalyptol may be mildly antiseptic, but has no special value as a mouth-wash.

The other ingredients are almost entirely those of taste and smell, and are more or less characteristic of the different preparations.

The formaldehyd in the Formolid preparation in strength of 0.25 per cent. adds slightly to the antiseptic action of that preparation.

Camphor is more or less antiseptic and pungent, and promotes secretion. In strong solution it is slightly anesthetic.

Now the real question is: Do the foregoing multiple mixtures fill the requirements of the object aimed at therapeutically? As mouth-washes we wish at times antiseptic action, at other times cleansing action, at other times soothing and sedative action.

As antiseptic for the mouth and throat we cannot improve on the carefully localized applications of the tincture of iodin or of weaker solutions of iodin; when deemed advisable, of a strong solution of nitrate of silver carefully applied locally; or of local swabbing with strong hydrogen peroxid solution, or the more generalized washing or spraying with dilute solutions (provided that hydrogen peroxid is not applied to a deep ulcer or sinus where it can possibly cause disintegration of tissue). Strong preparations of glycerin and strong solutions of alcohol are other pleasant antiseptics, and the latter is decidedly astringent.

When a strong antiseptic is used, after it has acted for a few minutes, soothing washes or sprays should be used. Also it should be remembered that any simple cleansing wash (than which perhaps nothing is better than simple salt solution in so-called physiologic strength, 0.9 per cent., or ¼ teaspoonful of salt to about half a glass of warm water, to which may or may not be added another ¼ teaspoonful of sodium bicarbonate) is of value on an inflamed mucous membrane. After such cleansing of the membrane, the antiseptic may be directly applied, if such is indicated, or the cleansing and soothing gargle or mouth-wash just mentioned may be all that is needed. It is not the particular preparation that is used, or the particular ingredients in mouth-washes and gargles, but it is efficient washing and gargling that is of benefit.

The value of boric acid, not only in being mildly antiseptic, but also in promoting mucous secretion and therefore causing the easy removal of follicular exudates and membrane, should not be forgotten. Many times the insufflation of boric acid powder directly on the region involved is most efficient. At other times gargling of a solution in which boric acid is suspended is of value. While boric acid will dissolve in water only to about 4 per cent., a large surplus of boric acid should be left undissolved in the bottle. The bottle should be shaken, and the patient then gargles a boric acid solution which will deposit boric acid crystals on the throat, and will often be of as much value as though the powder were insufflated.

Perhaps the most pleasing pungent taste to the majority of patients is peppermint, and there is no reason for mixing this up with several other aromatics. If peppermint is disagreeable to a particular person, wintergreen may be substituted.

The following are formulas of a few simple solutions for mouth and throat washes:

		gm. or c.c.		
℞	Acidi borici	2		ʒ ss
	Potassii chloratis	5	or	ʒ i
	Aquae menthae piperitae .	200		fl ʒ vi

M. Sig.: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

		gm. or c.c.		
℞	Sodii chloridi			
	Sodii boratis ....ää	2		ʒ ss
	Glycerini	50	or	fl ʒ iss
	Aquae gaultheriae...q. s. ad	200		fl ʒ vi

M. Sig.: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

		gm. or c.c.		
℞	Acidi salicylici	2		gr. xxv
	Glycerini	25	or	fl ʒ v
	Aquae menthae piperitae, q. s. ad	200		fl ʒ vi

M. Sig.: Use as a gargle or mouth-wash, diluted or undiluted, as directed.

The foregoing of course are only suggestions, and each physician should order the mouth-wash that he desires for his patient as carefully as he would write any other prescription. There is nothing wonderful or mysteriously curative in any of the formulas described, and simple home remedies will often be as effective as an expensive proprietary preparation, unless an antiseptic is required. Even simple starch water makes a very soothing gargle. The enormous literature offered by the Kolynos promoters is certainly not justifiable. No one would dispute that their preparations are more or less germicidal. On the other hand, it could be readily disputed that their combination was any more active than 25 per cent. alcohol in water or 25 per cent. glycerin in water, and a preparation of glycerin and alcohol with a mint taste may be ordered by any physician.

It is not our object to discuss the value of the various proprietary tooth-pastes. That the use of an antiseptic tooth-paste or an antiseptic mouth-wash, once or twice a day, will prevent acute infections that more or less enter through the nostrils must of course be denied. Strong antiseptic tooth-paste will not be tolerated by most gums, and it has been suggested above that one does not want the tooth-cleansing preparation too soapy, too irritant or too harsh.

If there is actual inflammation of the gums, medical or dental advice should be sought.

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RECENT PROGRESS IN THE STUDY OF PNEUMONIA

It has been remarked before in these columns that the advent of a new and effective experimental method is almost invariably followed by achievements in the field of discovery. Accordingly, the possibility of producing a fatal lobar pneumonia with a relatively rapid course, by the Meltzer method of intratracheal insufflation of cultures of pneumococci, has already been the means of demonstrating some of the agencies which determine the severity of the symptoms and the nature of the outcome of a most dangerous disease. To-day it is the importance of the leukocyte in the resistance of animals to experimental pneumonia that has attracted our attention. Winternitz and his colleagues[1] at the Johns Hopkins Hospital have compared the influence of two related substances, one of which is powerfully leukotoxic, on the course of the disease. Benzene (benzol), one of the compounds selected, not only destroys the leukocytes in the circulating blood, but also affects the bone-marrow in particular, and other hemopoietic organs to a less extent. On the other hand toluene (toluol), which is methylbenzene, produces no demonstrable change in the number of leukocytes. Animals treated with the leukotoxic benzene rapidly succumb to an induced pneumonia, whereas those treated with toluene, a similar chemical compound causing no leukopenia, show no decreased resistance.

The rôle of the leukocyte in the resistance of animals to experimental pneumonia is further emphasized by the fact that animals which respond to a pneumococcus infection with a leukocytosis, which occurs after repeated injection of toluene, are more resistant to the disease. Moreover, hyperleukocytosis can be induced in other ways—by the repeated injection of protein substances, for instance—before the production of the pneumonia, likewise apparently increasing the resistance of the infected animals.

The further fact established by Kline and Winternitz, that the number of bacteria inoculated is one among the numerous factors determining the outcome of the disease, has made possible new studies in immunity. If a small number of organisms are injected, the animals usually recover. Repeated doses were therefore given. An active immunity was thereby developed and animals thus treated have been able to withstand repeated increasing doses of pneumococci intratracheally. The serum from animals actively immunized in this way may be used successfully to confer passive immunity against the homologous organism. This is a step in a hopeful direction.

Another recently studied feature of interest in connection with the symptomatology of pneumonia concerns the peculiar detrimental influence exerted by the microorganisms responsible for the disease on the capacity of the blood for combining with oxygen. Experiments *in vitro* have demonstrated that this is decreased when the pneumococcus is grown in blood and a comparable change is produced with even greater readiness in solutions of the respiratory pigment, hemoglobin. The lowering of the oxygen-combining power is apparently due to the formation of methemoglobin.[2] Analogous changes have now been demonstrated to take place in the animal body itself, when there is a severe pneumococcus bacteriemia.[3] The findings have even been extended to human cases.[4] In most patients with uncomplicated lobar pneumonia the decrease of respiratory surface is completely compensated for, and the oxygen content of the blood is within normal limits. In the terminal stage of the fatal cases of pneumonia in which death does not occur with great suddenness Peabody has found that there is often a progressive diminution in the oxygen content of the blood. Synchronous with this is a progressive decrease in the oxygen-combining capacity of the blood. These changes are usually seen in patients in whom an intense bacteriemia has developed, and are analogous to those found in the arterial blood of infected rabbits, and to those resulting from the growth of the pneumococcus in blood *in vitro* as mentioned above. It is logical therefore to explain all of these findings in the same way, namely, as probably the result of a change of oxyhemoglobin to methemoglobin, which no longer acts as a carrier of oxygen. It seems reasonable, further, to believe that in many cases of pneumonia this modification of the molecule of the blood pigment is an important factor in the immediate cause of death, for the terminal symptoms—toxemia, cardiac failure, polypnea, pulmonary edema and cyanosis—run parallel to the changes in the blood and may well be due in part to the deficient oxygenation dependent on them.

1. Winternitz, M. C., and Hirschfelder, A. D.: Studies on Experimental Pneumonia in Rabbits, Jour. Exper. Med., 1913, xvii, 657. Hirschfelder, A. D., and Winternitz, M. C., ibid., 666. Kline, B. S., and Winternitz, M. C.: ibid., 1913, xviii, 50, 61.

2. Butterfield, E. E., and Peabody, F. W.: Jour. Exper. Med., 1913, xvii, 578.

3. Peabody, F. W.: The Oxygen Content of the Blood in Rabbits Infected with Pneumococcus, Jour. Exper. Med., 1913, xiv, 1.

4. Peabody, F. W.: The Oxygen Content of the Blood in Lobar Pneumonia, Jour. Exper. Med., 1913, xiv, 7.

SENSITIZED VIRUS-VACCINE

Some years ago Besredka observed that if an otherwise lethal quantity of typhoid bacilli was mixed either with

heated beef-serum or rabbit-serum and injected intraperitoneally into a guinea-pig, the animal would survive. The heated serum did not kill the bacilli and it was thought that the serum stimulated the leukocytes at the same time as it agglutinated the bacilli, and thus made them easier of attack by the phagocytes. He then soaked the bacilli in serum for a while, removed them by centrifugation and washed them in salt solution. In this case also the guinea-pigs survived the injection of what otherwise would have been a fatal dose. This experience led him to use specific antiserum for the treatment or sensitization of various germs before injection, thus eliminating everything in the serum except what would adhere to the bodies of the micro-organisms, namely, the specific antibodies. The injection of germs so treated produces a well-marked active immunity, and Besredka calls this kind of antigen or living vaccine "sensitized virus-vaccine."

Vaccines of this nature have been prepared for a number of diseases, as typhoid fever, bubonic plague, cholera and dysentery. The antirabic vaccine used to prevent rabies at the Pasteur Institute in Paris is now a sensitized virus prepared by treating fixed virus with antirabic serum. Besredka asserts that the injection of sensitized living germs produces a more substantial immunity and a greater production of antibodies than the injection of germs killed by heat or in other ways. His chief support for this assertion is the results obtained in the immunization of apes against typhoid fever. In this case sensitized living typhoid bacilli gave absolute protection, causing no fever and no reaction, while killed bacilli failed to protect adequately. Apparently the method is harmless, at least so far as the typhoid virus-vaccine is concerned, as Besredka reports that about ten thousand persons, men, women and children, have been inoculated without a single mishap of any kind. Besides the possibility of acute infection, which seems to be extremely remote in view of these results, there is also the possibility that in some persons the injection of living bacilli might lead to the development of a carrier state, which would be very unfortunate indeed. It will require a great deal of experience before we can feel that we are justified in deciding one way or the other in regard to this possible danger of creating typhoid carriers.

Another important fact to be considered is that there is no evidence that in human beings sensitized living typhoid bacilli give any better protection than killed bacilli, which, as practical experience in the United States Army and elsewhere abundantly demonstrates, do protect against typhoid fever. Hence it will be necessary, before the general use as vaccine of sensitized living typhoid bacilli can be considered seriously, not only to overcome the fear of infection, of which there seems to be little or no risk, but also to demonstrate conclusively that there is no danger of making typhoid carriers and that the results produced are superior to those now obtained with dead bacilli. What is true of this virus-vaccine is of course true also of other similar vaccines, so that at present the obstacles to the use of such living germs for protective purposes would seem to be quite impassable.

THE PRINTING INDUSTRY AND SKIN DISEASE

During the past year or more an exceptionally large number of cases of disease of the skin presenting symptoms of pronounced similarity have occurred among the printers employed in certain newspaper establishments in Berlin. At the outset of the illness the patients exhibited in the skin about the hands and forearms—the only parts of the body ordinarily involved—a characteristic condition of inflammation. The skin was hyperemic and tense, unduly warm to the touch, and exhibited incipient blisters. Somewhat later in the progress of the cutaneous disturbance exfoliation and other signs of artificially produced eczemas put in an appearance, giving evidence of a localized disease of the skin such as is attributable to occupational conditions. The testimony of the workmen involved indicated that these peculiar pathologic skin manifestations had their beginnings with the introduction of trade substitutes for the oil of turpentine commonly employed in printing-offices to wash and clean the type that has been in use.

The newer products which have been employed to replace the oil of turpentine for removing the ink from printers' forms include benzin, lye, petroleum and certain kinds of pine oil. All of these are either of themselves obviously injurious to the skin, as is well known to be the case with strong lye, or they frequently contain irritating adulterants or impurities which are present owing to the imperfect rectification in the processes of manufacture. In one Berlin printing-office, in which nearly half of the workmen who had to deal with the type forms showed symptoms of skin disease, the diverse cleaning fluids used were in every case objectionable.[1] The oil of turpentine used was adulterated with impure benzene (benzol); the petroleum was poorly rectified. Both of these products, when pure in the best technical sense, are among the least objectionable of the cleansing reagents employed in this department of the printing industry. Skin disease has rarely been reported when they are adopted. To be safe for use in contact with the skin, petroleum should be free from acid and from certain complex organic impurities. Nearly all of the substitutes for oil of turpentine contain inferior benzin, which is decidedly toxic.[2] Benzin products are said to be finding their way into cheaper grades of paints and call for scrutiny from the point of view of danger to those who have to handle them. In the same Berlin printing-office a turpentine substitute used under the name of *Fütterin* was found to be a strongly alkaline.

1. Zellner, H., and Wolff, H.: Ueber die Ursachen der Hauterkrankungen in Buchdruckereien, Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxv, 69.
2. Zellner, H.: Farbenzeitung, xvi, No. 51.

caustic fluid. Like ordinary pine oils (sold in Germany as *Kienöl*) such stuff ought to be excluded entirely. Out of thirty-seven samples of these cleaning materials examined by Zellner and Wolff in Berlin thirty-two, or 87 per cent., failed to meet a reasonable technical requirement for freedom from ingredients like benzene, lye, etc., unquestionably harmful to the skin. The health of the employees coming into contact with these objectionable fluids has made an immediate return to the utilization of high grades of oil of turpentine an imperative necessity. It cannot be maintained that with the exclusive employment of this cleansing liquid or with the use of petroleum the occupational eczemas and related skin diseases will be entirely abolished, for some skins are sensitive in an extreme degree to even the mildest irritants.

In insisting on the exclusion of objectionable benzin from processes in which the skin is brought into contact with it, reference may be made to a few illustrative instances of skin damage caused by this liquid. Dr. Oestreicher of Berlin[3] has seen eczemas induced by wearing gloves cleaned with benzin. He states that harmful effects have further been produced by cleansing the skin with benzin prior to operative procedures and by removing the remnants of skin plasters and salves by the application of the same organic solvent.

The irritant action of the volatile oils, among which the turpentine oil group is included, is presumably attributable to their volatility. Applied to the skin, as they must be when they come into contact with the arms and hands in certain occupations and industries, they may cause redness, itching and warmth owing to a local dilatation of the vessels. This may in turn be due to the penetration of the oil to the cutaneous arterioles or veins, or to a reflex from the irritated terminations of the sensory nerves acting on the vasomotor centers. Turpentine oil is far less irritant than many of the more powerful ones. There are few cases of poisoning with oil of turpentine; and on the authority of Kunkel[4] we may deny the existence of chronic intoxication caused by it. The oil of turpentine is promptly excreted from the body and no permanent damage appears to be done to the internal organs.

3. The report is furnished by Zellner, H., and Wolff, H.: Ztschr. f. Hyg. u. Infectionskrankh., 1913, lxxv, 73.

4. Kunkel, A. J.: Handbuch der Toxikologie, 1901, p. 957.

THE REGENERATION OF THE BLOOD AFTER SPLENECTOMY

The publication of the records of a number of cases of pernicious anemia in which decided improvement has been reported as the consequence of the removal of the spleen[1] raises new questions with respect to the functions of this organ. The surgical procedure was introduced by Eppinger and rests on the assumption that in hemolytic anemias a pathologic augmented destruction of red blood-corpuscles takes place in the spleen. Undoubted polycythemia has been noted after splenectomy in a case of splenic anemia. The logic of the situation is obvious; and the results in the few cases already treated in this way seem to justify a further consideration of the utility of such surgical intervention.

The increased production of erythrocytes after removal of the spleen in man at once appears to be in direct contradiction to the findings of Asher and his pupils[2] in connection with their investigation of its function as an organ of iron metabolism. These researches have brought evidence that when the spleen is removed from either man or animals, iron is eliminated in increased amounts in comparison with the same conditions when the spleen is still functioning. The ability to conserve this element, important for hemopoietic uses, appears to be lost; so that unless the supply of iron in the food is decidedly abundant the hemoglobin content and the number of red blood-corpuscles experience a noticeable diminution. It seemed, in the light of these earlier reports, that the capacity for blood formation was not impaired, but that this capacity could not manifest itself in the absence of the spleen unless provision was made for a suitable supply of the necessary iron no longer stored for such emergencies in that organ.

Incidentally, however, it has been noted in the course of these studies in Asher's laboratory that a slight hemorrhage which is followed by a small decrease in hemoglobin and erythrocytes in the blood of normal animals may actually result in a transitory increase in these blood-factors when the loss of blood occurs in a spleenless individual.[3] This, it will at once be noted, is precisely what appears to have happened in the clinical cases to which reference was made at the outset. Renewed investigations under experimental conditions[4] appear to furnish the explanation of the apparently paradoxical results following splenectomy. An exceptional increase in the content of hemoglobin and the number of erythrocytes may be conceived as due to decreased hemolysis or some compensatory regenerative process, or both. The facts, briefly reviewed, are these: Immediately after the removal of the spleen from normal animals there occurs, with the proviso of adequate iron-supply in the diet, an increase in the blood-pigment and red cells easily explicable on the assumption of a diminished hemolysis in the absence of the spleen. If a loss of blood occurs after splenectomy the decrease in the quantity of hemoglobin and the number of erythrocytes is decidedly less than is the case after comparable hemorrhage in intact animals. The regeneration

1. Klemperer, G., and Hirschfeld, H.: Milzexstirpation zur Behandlung der perniziösen Anämie, Therapie der Gegenwart, 1913, liv, 385. Also Eppinger: Zur Pathologie der Milzfunktion, Berl. klin. Wchnschr., Aug. 18 and 23, 1913.

2. Functions of the Spleen, Editorial, THE JOURNAL A. M. A., Oct. 26, 1912, p. 1546; Splenectomy and Metabolism of Iron, Editorial, Sept. 6, 1913, p. 777.

3. Vogel, H.: Fortgesetzte Beiträge zur Funktion der Milz als Organ des Eisenstoffwechsels, Biochem. Ztschr., 1912, xliii, 386.

4. Asher, L.: Beiträge zur Physiologie der Drüsen, XIX Mitteilung. Fortgesetzte Beiträge zur Lehre von der Funktion der Milz als Organ des Eisenstoffwechsels. Ueber die Kompensationsvorgänge nach Milzexstirpation. Sollenberger, H.: Biochem. Ztschr., 1913, lv, 13.

is more prompt in the spleenless animals and may even lead to a content of blood elements above the normal. This response Asher is inclined to attribute to a hyperfunctioning of the bone-marrow as a compensatory result of removal of the spleen. Physical conditions, such as those produced by hemorrhage or the lack of oxygen due to hydrocyanic acid poisoning, act as stimuli to the remaining hemopoietic apparatus.

Viewed in this new light the removal of the spleen in the hope of provoking more effective regeneration of the blood no longer appears entirely indefensible on physiologic grounds. Abundance of iron must, of course, be furnished without fail when the organ of iron metabolism is removed. Whether the alleged favorable results of splenectomy are finally to be ascribed to improved regeneration of corpuscles or to decreased destruction by hemolysis cannot be decided. Bearing in mind how hopeless the situation in pernicious anemia usually is we may now at least give some consideration to the suggestion of Klemperer and Hirschfield. They contend that when arsenic therapy fails, splenectomy is defensible as an expedient. Only a large number of trials can give a final decision regarding the real possibilities and outcome of this procedure. In any event it is unfair to delay the proposed operation until the strength of the patient has been completely exhausted.

THE CULTIVATION OF MALARIAL PARASITES IN VITRO

The noteworthy achievement of the successful cultivation of malarial parasites first announced by Bass and Johns[1] in 1912 and since verified by others has pointed to the possibility of cultivating *in vitro* any protozoal parasite, however specialized it may be. Thomson and Sinton[2] have successfully cultivated the human trypanosome, and the development they obtained was apparently that which takes place in the stomach of the tsetse fly. So far only the asexual generation of the malarial parasite has been grown *in vitro*. The next step will be to cultivate the sexual generation as it occurs in the human host and in the mosquito.

What these remarkable new methods of growing such parasites outside of the animal can accomplish to promote a better understanding of their morphology and behavior is indicated in the latest contribution by J. G. Thomson and D. Thomson,[3] whose researches on the cultivation of the parasites of malaria have been carried on under the leadership of Sir Ronald Ross at Liverpool. They have grown both the malignant and the benign tertian parasite after the method of the American investigators, Bass and Johns. The Liverpool workers have, in one case, grown four complete generations of parasites in one tube and remark that there is no apparent reason why their growth should not continue indefinitely provided suitable conditions are maintained.

The cultures of benign tertian parasites differed from those of the malignant tertian in that there was no tendency to clumping of the parasites in the former, either before or during sporulation. This difference is held to explain in a satisfactory manner why only young forms of malignant tertian are found in the peripheral blood, as the clumping tendency of the larger forms causes them to be arrested in the finer capillaries of the internal organs. It also explains the tendency to pernicious symptoms, such as coma, in malignant tertian malaria. All stages of the benign tertian parasite are found in the peripheral blood; yet there are seldom pernicious symptoms, because there is no tendency to clumping. The malignant tertian parasite, *Plasmodium falciparum*, is capable of producing, in maximum segmentation, thirty-two spores. On the other hand, the benign tertian *Plasmodium vivax* produces, as a rule, during maximum segmentation, sixteen spores; sometimes more may be produced, but the number never equals thirty-two. The morphology of the two species mentioned in the human host is identical with that obtained by their growth in the culture tube. Such observations are splendid triumphs of modern laboratory study.

1. Bass and Johns: The Cultivation of Malarial Plasmodia *in Vitro*, Jour. Exper. Med., 1912, xvi, 567.
2. Thomson, J. G., and Sinton, J. A.: The Morphology of Trypanosoma gambiense and Trypanosoma rhodesiense in Cultures; and a Comparison with the Developmental Forms Described in Glossina palpalis, Ann. Trop. Med. and Parasit., 1912, vi, 331.
3. Thomson, J. G., and Thomson, D.: The Growth and Sporulation of the Benign and Malignant Tertian Malarial Parasites in the Culture Tube and in the Human Host, Proc. Roy. Soc. London (B), 1913, lxxxvii, 77.

Current Comment

THE TRIBUNE TURNS ON THE LIGHT

Bold, blatant, indecent quackery is no longer profitable in Chicago. More than this; it is not even popular with those highly respectable family newspapers that in the past have offered a welcome haven to any swindling medical faker who was willing to pay double advertising rates. The reason for the sudden unpopularity of this villainous business is the Chicago *Tribune*. Commencing with its issue of October 27, the *Tribune* published article after article giving a detailed exposé of practically all the advertising quacks in the city of Chicago. For some weeks before this time it had assigned some members of its reportorial staff to the work of investigating the local quack industry. The people of Chicago know—so in fact do the people of the United States—that when the *Tribune* goes into a thing it usually goes into it with thoroughness. In getting evidence against the quacks, the *Tribune* ran true to form. Faker after faker was exposed; the names were given of "the men higher up" who owned the advertising offices, as also were the names of the renegade doctors themselves and those of the owners of the down-town property who were renting rooms to these swindlers. The first resentment on the part of the quacks was quickly followed by consternation, which in turn gave place to utter rout. Some members of the unholy fraternity closed their offices and fled to new

fields. Others are lying low, hoping that the storm will blow over and counting, doubtless, on the notoriously short memory of the public and the race-old tendency to be humbugged. The results of the *Tribune's* campaign are encouraging. The State Board of Health of Illinois will now feel that it has public opinion behind it in any action it may take toward revoking the licenses of the men who have sold their professional services to the scoundrels who own these advertising offices. The federal authorities which had had some of these individuals under investigation, previously, have brought matters to a head and have already secured the conviction and punishment of one quack. The Chicago *Tribune* has done one more public service and has increased the debt, already a large one, which the people owe it.

A DESERVED HONOR

The announcement of the call of Colonel Gorgas to South Africa to aid in determining the best method of handling epidemic disease among the workers in the mining district is a fitting recognition of the magnificent work which he has conducted in Panama. The contrast of the present sanitary conditions in the Canal Zone with those under French rule, under which every tie in the line of the Panama railway was said to represent a human life, is sufficient to account for the new honor which has come to Colonel Gorgas. In view of his previous record we have no doubt of further success in this new undertaking.

THE FORMATION OF CONJUGATED GLYCURONATES

The conjugation of sulphuric acid with substances of a toxic nature is one of the unique protective methods of the organism. Thus the phenol and cresols which are so commonly formed in intestinal decomposition are eliminated as salts of sulphuric acid; and a comparable reaction occurs in the chemical arrangement whereby the much-discussed indol is, after slight preliminary oxidation, converted into indican, the compound in the guise of which indol is excreted. A host of other aromatic substances, including those resembling phenol or which by oxidation are changed into phenols, such as thymol, anilin, naphthalin, pyrogallol and tannin, are similarly combined with sulphuric acid, with or without preliminary oxidation, and are accordingly converted into relatively harmless products readily soluble and rapidly eliminated. It is not so generally appreciated, though the fact has long been known and described, that the carbohydrate derivative glycuronic acid serves the same uses as sulphuric acid in being combined with aromatic compounds and to a certain extent thereby detoxicating them. This chemical means of defense against poisons is one apparently favored by the organism in the case of certain higher alcohols such as thymol, camphor derivatives, menthol, etc. Apparently the sulphuric and glycuronic acid conjugations supplement one another, the former serving most prominently as a general rule. Sulphuric acid is a final product of oxidative changes in the body and it is easy to understand how this can become available in these protective operations. It is an end-product ready for elimination. Glycuronic acid, on the other hand, is a readily oxidizable compound. Ordinarily it is not found in the blood or tissues. The question therefore arises as to how the conjugate glycuronates are formed in the organism. It appears from the recent studies of Hämäläinen[1] that the alcohols which have a tendency to enter into this protective reaction are first combined with glucose which is always readily available in the body. It is from such glucosid-like compounds that the glycuronates are subsequently derived. In evidence of this explanation Hämäläinen has succeeded in isolating the intermediate santenol glucosid when alpha-santenol (which normally leads to the formation of a corresponding glycuronate) was suitably introduced into the circulation. Accordingly the primary protective device in these cases seems to involve the cooperation of the simple sugar, glucose.

NOMENCLATURE

At its recent meeting[2] the American Roentgen Ray Society adopted an official nomenclature pertaining to roentgenology. The adoption of such a list to be used in medical literature is commendable. By a continued insistence on the use of words mutually agreed on, medical publications will aid in giving simplicity to a nomenclature already so complicated that understanding is difficult. These terms have been used by THE JOURNAL for some time and have been found satisfactory; uniformity makes more easy the indexing of papers and communications on any topic and avoids multiplicity of terms which complicate the editing of manuscripts and bewilder the reader.

THE MODE OF ACTION OF ATOPHAN—2-PHENYL-QUINOLIN-4-CARBOXYLIC ACID

Trustworthy experimental evidence[3] leaves no doubt that two comparatively recent additions to the ever-growing list of synthetic drugs, namely, 2-phenylquinolin-4-carboxylic acid (atophan) and 6-methyl-2-phenylquinolin-4-carboxylic acid ethyl ester (novatophan), increase the elimination of uric acid in man. For the practical consequences of this effect as well as for purely theoretic reasons it becomes desirable to know precisely how the increase is brought about. It is conceivable, for example, that a greater production of uric acid is induced by the drugs—a result which would scarcely encourage their use in therapy; on the other hand, they may act by actually facilitating the elimination of preformed uric acid from the circulation. That the latter mechanism of action is the real effect of these drugs has been made more than likely by various observations and in particular the very recent American investigations of Folin and Lyman,[4] and Haskins.[5] The former investi-

1. Hämäläinen, J.: Ueber die Entstehungsweise und Bildungsstäcte der gepaarten Glykuronsäuren im Organismus, Skandin. Arch. f. Physiol., 1913, xxx, 196.

2. Society Proceedings, THE JOURNAL A. M. A., Nov. 1, 1913, p. 1659.

3. Nicolaier and Dohrn: Deutsch. Arch. f. klin. Med., 1908, xciii, 331. Dohrn: Ztschr. f. klin. Med., 1912, lxxiv, 5. Plehn: Deutsch. med. Wchnschr., 1912, No. 3. Weintraud: Verhandl. d. Cong. f. inn. Med., 1911, xxviii, 482. Starkenstein: Arch. f. exper. Path. u. Pharmakol., 1911, lxv, 177. Retzhaff: Ztschr. f. exper. Path. u. Therap., 1913, xii, 307, and many others.

4. Folin, O., and Lyman, H.: Jour. Exper. Pharmacol., 1913, iv, 539.

5. Haskins, H. D.: The Effect of Atophan and Novatophan on the Endogenous Uric Acid Excretion of Normal Men, ibid., 1913, v, 63.

gators have shown the actual distinct lowering of the uric acid content of the blood after the use of 2-phenyl-quinolin-4-carboxylic acid in both normal and gouty subjects. Haskins noted the usual increase in the uric acid output attending the use of the drug; and inasmuch as this was followed up by an actual decrease of uric acid in the urinary content, these findings likewise favor the view that the drug merely stimulates the kidneys to abstract from the blood a greater quantity of the purin end-product than it normally would. The subsequent decrease follows as a compensatory consequence.

SNEEZEWEED

Throughout the United States there is found a well-known plant, *Helenium autumnale,* which is frequently grown for decorative purposes, owing to its large showy, yellow flowers that blossom in autumn. The popular names of this plant are numerous, ranging from the more familiar terms sneezeweed, autumn sneezewort, staggerweed—all expressive of a physiologic action—to the more descriptive designations of swamp sunflower, false sunflower, yellow star and ox-eye. The sternutative properties of the plant have long been recognized. Inhalation of the dust or powder of the dried plant or even chewing the leaves causes violent sneezing; and there is an account of an instance in which its use for interior floral decorative purposes was attended with a response of sneezing and weeping on the part of the persons present in the room. *Helenium autumnale* is known to have very marked poisonous effects on cattle, horses and mules, so that it is counted among the stock-poisoning plants of the West. Medicinally an interest in the species arises from the fact that it has been recommended as a therapeutic agent in the guise of a tonic, snuff, febrifuge and diaphoretic, as well as for "colds." A writer of a generation ago says of *Helenium:* "It is known and employed all over the country as a valuable errhine. The whole plant acts as such, but the flowers, especially the central florets, are the more powerful. It may be used in diseases of the head, deafness, amaurosis, headache, hemicrania and congestion of the head and jaws. The shocks of sneezing are often useful in these cases when other remedies hardly avail."[1] As a result of the investigations of Dr. P. D. Lamson[2] in Faust's pharmacologic institute at Würzburg it has now been shown that the pharmacologic behavior of a crystalline active principle, helenin, first isolated by Reeb,[3] corresponds with that of the entire plant. In view of the reputed medicinal uses of the latter, Lamson has considered the therapeutic possibilities of the newly discovered compound, the exact chemical structure of which still remains to be unraveled. Helenin cannot be classed as a protoplasmic poison and it has no noticeable action as an antipyretic. The pre-eminent property is that of a very active local irritant to mucous membranes in general. This explains the sneezing and lacrimation when the plant products come into contact with the mucous membranes of the nose and eye; the alimentary irritation attended with vomiting and diarrhea when the path of entry is the mouth, and the pain and edema following subcutaneous administration. In cases of lethal poisoning gastro-enteritis is the cause of death when the poison is given orally; after intravenous injection there is failure of the heart.

The difficulty in the absorption of helenin suggests a favorable property in its possible use as a vermifuge, provided an action on intestinal parasites could be demonstrated; but inasmuch as the intense local irritant action on the alimentary mucosa would exclude its use except in very dilute solution, a toxicity for parasites seems unlikely under this condition. As an errhine it is unquestionably active, and Lamson suggests that the plant itself may be a cause of fall hay-fever. Melted lard has been suggested as an antidote to *Helenium* intoxication in the case of cattle poisoned by the plant. In harmony with this it has been found that when oil is given by mouth the local irritant action of the isolated drug on the bowel is markedly alleviated. There is no suggestion of any interesting usefulness in the domain of therapeutic application as the result of the scientific investigation of helenin, but the toxicology of the plant is now made clear.

1. Bigelow, J. M.: Detroit Rev. Med. and Pharm., 1872, vii, 199.
2. Lamson, P. D.: The Pharmacologic Action of Helenin, the Active Principle of Helenium autumnale, Jour. Exper. Pharmacol., 1913, iv, 471.
3. Reeb, E.: Helenium autumnale et son principe actif, Mulhouse imprimerie, J. Brinkmann, 1910.

THE EFFECT OF FEEDING STARCH ON THE SUGAR CONTENT OF THE BLOOD

The question of the sugar content of the blood and its variation under the diverse conditions which arise in health and disease is a timely one. The studies of the past two or three years in this direction have been nothing short of helpful. They have contributed to the development of promising theories and therefore are likely to furnish something of value in the way of practice. For this reason we feel justified in recurring to the subject at frequent intervals.[1] It is tacitly assumed that in health the sugar content is a fairly fixed one so that it may be represented as a sort of physiologic constant. From recent observations in Minkowski's clinic[2] it appears that this is, strictly speaking, not a correct view. Starch is rarely charged with promoting a tendency to alimentary glycosuria, inasmuch as it is assumed to be digested with comparative slowness in contrast with the soluble sugars, and therefore to undergo absorption gradually, without overwhelming at any moment the organs that are entrusted with the storage and conservation of digested carbohydrates. Nevertheless Welz has found that even moderate amounts of starchy foods fed to individuals free from every manifestation of disturbed carbohydrate metabolism may bring about an undeniable and sometimes by no means inconsiderable increase in the sugar content of the blood—an amylogenous hyperglycemia. This is not sufficient to provoke glycosuria, and the figures obtained for the increment in ten normal subjects ranged from 0.04 to 0.08 per cent. of sugar. There are instances now recorded in which the content of blood-sugar was doubled by a meal of 200 gm. (6⅔ ounces) of bread together with 100 gm. (3½ ounces) of potatoes. It is not an incident of the meal *per se;*

1. The Sugar Content of the Blood, editorial, THE JOURNAL A. M. A., April 19, 1913, p. 1228. The Blood-Sugar in Human Diabetes, Current Comment, Aug. 9, 1913, p. 418.
2. Welz, A.: Physiologische amylogene Hyperglykämie, Arch. f. exper. Path. u. Pharmakol., 1913, lxxiii, 159.

for after meat feeding no such "physiologic" hyperglycemia is noted. Evidently the niveau of the blood-sugar is far more responsive to dietary factors than has hitherto been believed. In other words, the physiologic adjustments of the body are singularly sensitive and delicate.

Medical News

COLORADO

Loses Bequest on Technicality.—Because of the ambiguity and vagueness of a paragraph in the will of R. L. Kaplan, millionaire philanthropist of Alabama, a bequest of $70,000 to the Jewish Hospital for Consumptives in Denver has been held null and void by the courts, because there are two Jewish institutions which maintain hospitals in Denver, and the terms of the will do not show clearly for which institution the bequest was intended.

Radium for Use of Physicians.—The first step in the plans of Alfred I. Dupont to use the output of the pitchblende mines for the use of the medical and scientific fraternity of the United States, was taken two weeks ago when he placed in the hands of Dr. Walter A. Jayne, Denver, a quantity of pitchblende ore with which to make experiments in the cure of disease. He also furnished Prof. L. F. Miller of the department of physics of the State School of Mines, Golden, some of the ore for scientific experimentation.

ILLINOIS

New Officers.—Wabash County Medical Association at Mount Carmel, October 29: president, Dr. John J. McIntosh, Allendale; secretary, Dr. John B. Maxwell, Mount Carmel.

Sanatorium for Rock Island.—Drs. Joseph De Silva, Bernard J. Lachner and Louis Ostrom, the commission in charge of the sanatorium project for Rock Island, have purchased for $5,000 a tract of land of nearly eight acres on which to establish a sanatorium. The commission has about $12,000 in hand at the present time. An administration building will first be erected, and other buildings as may be required.

Dental Examination Scandal.—As a result of charges made by a daily paper that a portion of the questions prepared for the examination to be held by the State Dental Board this week had been sold for $50 to a newspaper reporter, purporting to be a candidate for examination, new questions have been prepared and Dr. Peter T. Diamond, accused of having been a party to the sale of questions, has been temporarily removed from the Board of Dental Examiners.

Chicago

Personal.—Dr. Clarence H. Wall, police ambulance surgeon, who was operated on for hernia, October 21, is convalescent. ——Dr. Liston H. Montgomery has been appointed surgeon of the Eastern Division of the Chicago Great Western Railroad, to date from October 10.——Dr. Meyer Nuta has returned from Europe.

Safety Conference.—At a joint meeting of the Chicago Medical Society and the Public Safety Commission held November 5, the addresses made were on the lines of promoting unity between the physicians of the city, the public and the Safety Commission. Prof. Graham Taylor spoke on "The Public Burden of the Insecurity of Life;" Coroner Peter M. Hoffman, on "Safety First;" Dr. Frederick A. Jefferson, on "Suicide;" Dr. Daniel M. Eisendrath, on "Tetanus," and Dr. John D. Robertson, on "Hemorrhage, Concussion, Shock."

Special Gynecological Meeting.—At the special meeting of the Chicago Gynecological Society held in the Florentine Room of the Congress Hotel, November 15, at 8 p. m., papers were read by Dr. Lewis S. McMurtry, Louisville, on "The Foundation of Modern Gynecology and Abdominal Surgery;" by Prof. Dr. Kroenig, Freiburg, Germany, on "The Difference Between Former and Newer Treatments by X-Ray and Radium in Gynecological Diseases;" by Prof. Dr. Gauss, Freiburg, Germany, on "The Report of the Result of Radiotherapy in Gynecology;" by Dr. Thomas S. Cullen, Baltimore, on "The Umbilicus and Its Diseases," and by Dr. Robert L. Dickinson, Brooklyn, N. Y., on "Efficiency Engineering as Applied to Gynecological Surgery."

Exposure of Medical Quacks.—The Chicago *Tribune*, as the result of investigation of a group of firms and individuals operating in Chicago as medical specialists and preying on the ignorance of their patrons, suggests the advisability of further investigation by the police department. The investigation has been carried on for a considerable time with special reference to the advertising specialists who claim to cure "diseases of men." The firms and individuals thus far investigated are as follows:

"Professor Ehrlich," 303-304, 145 North Clark Street, said to be conducted by the Drs. Code.

Dr. Edward N. Flint, 322 South State Street.

Dr. Isaac Walter Hodgens, 35 South Dearborn Street.

Dr. Howe & Co., 120 North Dearborn Street, with Dr. Ward in charge.

Dr. Francis Leaverett Sweeny, 63 West Randolph Street.

Dr. Lewis E. Zins, 183 North Clark Street.

Dr. Bernard M. Ross, fifth floor Crilley Building.

Atomo-Radio Co., 48 West Randolph Street, Dr. Lawhon in charge.

At the City Council meeting October 28 an order was passed by unanimous vote calling on the corporation counsel's office to submit to the council at its next meeting a scheme whereby advertising medical swindlers can be driven from the city.—— The State Board of Health has been asked by Gov. Dunne to present a statement concerning the legal status of these quacks.——At a meeting of the publishers of the Chicago Foreign Language Newspaper Publishers October 29, a resolution was adopted that the present campaign of the Chicago *Tribune* against the quack doctors who have been preying on the weak and unfortunate of the community so long a time unmolested, is entitled to the support and cooperation of all reputable journals.

IOWA

Hospital Opened.—The new miners' hospital, Albia, was formally opened October 27. Dr. T. Ernest Gutch, Albia, is in charge of the hospital, which is steam-heated and has accommodations for nine patients.

Public Health Education.—Drs. Mathew N. Voldeng, Cherokee, Henry Albert, state bacteriologist, Iowa City, Lenna L. Means, Des Moines, Jeannette Throckmorton, Chariton, and Paul E. Gardner, New Hampton, have been appointed members of the state societies' committee.

Sanatorium Notes.—The old Sac and Fox Indian School near Toledo is to be used as a tuberculosis sanatorium for Indian children.——The Associated Charities of Des Moines has decided to dispose of the Ridge Camp property. The tuberculosis hospital was discontinued in September.——The board of supervisors of Polk County has appropriated $5,000 for the erection at the County Farm of a hospital for the care of the tuberculous.

Physicians Win Suits.—In the case of Dr. Erasmus E. Birney, Nora Springs, charged with having performed a criminal operation resulting in the death of Miss Myrtle Irish, the jury sent in a unanimous verdict of acquittal.——In the suit of Dr. Soeren W. Staads, Sioux City, against Hollister Simmons, for $300 for an operation performed on Mrs. Simmons, the defendant is said to have defaulted and judgment was given Dr. Staads for the amount claimed.

Personal.—Dr. Elijah M. Heflin, Calmar, is reported to be seriously ill at the home of his brother in Grand Island, Neb. ——Dr. Oliver J. Fay, Des Moines, has been appointed district surgeon for the Chicago and Northwestern System.——Dr. William R. Whiteis, Iowa City, has been appointed chief surgeon of the University Hospital, Iowa City, and also acting professor of surgery in the medical department, vice Dr. William Jepson, Sioux City, resigned.——Dr. Carroll C. Snead, Newton, is critically ill, the result of a cerebral hemorrhage. ——Dr. William D. Christy, Creston, is reported to be ill with cerebral hemorrhage.

New Officers.—Dallas-Guthrie County Medical Society at Panora, October 16: president, Dr. Samuel P. Free, Perry; secretary-treasurer, Dr. John V. Littig, Davenport (reelected). ——Council Bluffs Medical Society: president, Dr. William P. Hombach; secretary, Dr. John S. McAtee.——Southwestern Iowa Medical Society at Creston: president, Dr. B. L. Eiker, Leon; secretary-treasurer, Dr. Claire H. Mitchell, Weldon.—— Bremer County Medical Association at Waverly: president: Dr. F. A. Osincup, Waverly; secretary, Dr. Ennis, Sumner.—— Chickasaw County Medical Association in New Hampton, November 3: president, Dr. Alexander D. McKinley, Lawler; secretary-treasurer, Dr. Paul E. Gardner, New Hampton.—

Scott County Medical Society at Davenport, November 4: president, Dr. Peter A. Bendixen; secretary, Dr. John V. Littig, both of Davenport. The society adopted a resolution indorsing the Chicago *Tribune* for its fight on medical quacks.

MARYLAND

Work Begins on Hospital Annex.—Work was begun October 14 on a three-story annex to the Union Hospital, Elkton.

Die in Sanitarium Fire.—Two patients in the Edgemere Sanitarium, Govans, near Baltimore, were burned to death October 14, in a fire which practically destroyed the building. A nurse received serious burns while assisting patients to escape.

Personal.—Dr. P. Edward Stigers, Hancock, who has been ill with fever at the City Hospital, Martinsburg, is reported to be convalescent.——Dr. Oscar Fisher, Frostburg, was severely injured October 13 when his automobile overturned near Eckhart.——Dr. John E. Legge, Cumberland, has returned from abroad.

Baltimore

State Board Moves.—The State Board of Health, which has been located on East Franklin Street for several years, has moved to the Frank Brown Building on Saratoga Street. The board will occupy the second and third floors of the building.

Foreign Visitors.—Dr. Adolph Schmidt, professor of medicine in the University of Halle, Germany, had conferred on him the honorary degree of LL.D. by the University of Maryland, Virginia, November 11.——Dr. A. Loheenolt, Halle, Germany, is making a study of the hospitals of the city.

Personal.—Dr. Harry W. Plaggemeyer, who has taken charge of one of the departments of the Detroit General Hospital, was given a luncheon by fourteen Detroit physicians October 21.——Dr. Nathaniel Garland Keirle celebrated his 80th birthday anniversary October 10.——Dr. Adolph Meyer has returned from abroad.——Dr. Benjamin Swint has resigned as resident physician at St. Joseph's Hospital and has been succeeded by Dr. Edward F. Johnson.

MASSACHUSETTS

New Officers.—Holyoke Medical Association, October 7: president, Dr. John J. Carroll; secretary-treasurer, Dr. Fred H. Allen, both of Holyoke.

Addition to Hospital.—A building not to exceed $15,000 is to be erected by the City of Boston and then cared for by the trustees of the Newton Hospital. The building will be a part of the present hospital group.

Personal.—Dr. David Fisher, Atwater, said to be the oldest alumnus of Yale, celebrated his 96th birthday anniversary at Springfield, recently.——Dr. John R. Slattery, South Boston, has been honored by the pope by being made a Knight of the Holy Sepulchre.

Academy Opens Clubhouse.—Nearly 500 physicians and their families of Western Massachusetts were present at the opening of the new home of the Springfield Academy of Medicine on State Street. A mansion, which was purchased several years ago, has been transformed into a clubhouse. The first formal meeting of the society in its new home was held October 14.

Fitz Memorial Meeting.—In the medical school buildings of Harvard University, Boston, there will be held on November 17 at 8:15 o'clock, a memorial meeting to the late Reginald Heber Fitz, professor emeritus of the theory and practice of physic. Addresses will be made on that occasion by Prof. W. W. Keen, Philadelphia; Charles W. Eliot, president emeritus of Harvard University; Dr. Henry P. Walcott, chairman of the State Board of Health; Dr. William Sydney Thayer, Baltimore, and Dr. William T. Councilman of Harvard University. The general medical public is invited.

Changes in Medical Corps.—The following changes of assignments of officers of the medical corps, M. V. M., are announced: Major John D. R. Woodworth is relieved from command of the Hospital Corps, but will be in command of Field Hospital, No. 1, until otherwise ordered; Capt. George F. Keenan is assigned to command Ambulance Company No. 1; Lieuts. Oscar Dudley and Leonard W. Hassett are relieved from duty with Field Hospital No. 1 and assigned to duty with Ambulance Company No. 1, and Lieuts. George L. Howland and Charles R. Morgan are relieved from duty with Ambulance Company No. 1 and assigned to duty with Field Hospital No. 1.

MINNESOTA

New Officers.—Blue Earth Valley Medical Society, in Blue Earth, October 23: President, Dr. Peter F. Holm, Wells; secretary, Dr. John A. Broberg, Blue Earth (reelected).

Placarding for Tuberculosis.—The State Board of Health has passed a rule authorizing and directing local health officers to placard premises where tuberculosis exists if proper precautions are not being taken by the patient or those in charge of the patient to prevent contagion.

Personal.—Dr. Carl J. Holman, Mankato, is under treatment at the Emmanuel Hospital for fractured ribs and an injury to the leg sustained in a fall at Valley Grove, recently.——Dr. Henry E. Michelson of the staff of the McIntyre Hospital, Virginia, has been appointed assistant health officer of Virginia.——Dr. Joseph Nicholson, Brainerd, has been elected chief surgeon of the Minnesota Central Railway Company.——Dr. O. A. Oredson, Duluth, has sailed for Europe.

Sanatorium Notes.—Renville and Watonwan counties have appropriated $5,000 and $6,000, respectively, for the construction and maintenance of county tuberculosis sanatoriums.——Otter Tail County Tuberculosis Sanatorium at Otter Tail Lake was formally opened October 30. The institution is admirably arranged and equipped and has accommodation for thirty-seven patients. Fourteen applications for admission have thus far been received.——Lincoln, Murray and Lyon counties have agreed to erect a central sanatorium.——Goodhue County has appropriated $15,000 to be used in the erection and equipment of a tuberculosis sanatorium. To this will be added a similar amount given by the state.

MISSOURI

Personal.—Dr. E. W. Caveness has resigned as superintendent of the Kansas City Municipal Farm, but will continue as physician of the institution.——Dr. William P. Simpson, Chilicothe, was seriously injured by a fall October 23.——Dr. John W. Dean, for forty-five years a practitioner of Maryville, has retired from practice.——Drs. Woodson Moss, James Gordon, Joseph E. Thornton and David H. Dolley have resigned as members of the Board of Health of Columbia.

St. Louis

New Officers.—St. Louis Pediatric Society: president, Dr. Jules M. Brady; secretary-treasurer, Dr. T. C. Hemplemann.

Building Presented to Hospital.—The Barnard Free Skin and Cancer Hospital has been presented by Mrs. Barnard with the building immediately east of the hospital building, to be used as a home for nurses. The house will be known as the Mrs. George D. Barnard Home for Nurses.

Personal.—Dr. Frederick A. Baldwin has been appointed chief of the state department of bacteriology, vice Dr. Downey L. Harris, resigned to accept the position of professor of hygiene and preventive medicine in the St. Louis University Medical School.——Dr. C. W. Scharff has been appointed resident physician at the City Hospital.——Dr. Daniel C. Goodman was injured in an automobile accident in New York City, October 12.——Dr. Frank Wild suffered a fracture of the right shoulder October 9, when the tongue of a wagon was driven through the window of a street-car in which he was sitting.——Dr. R. Lilburne Byrd is under treatment in the Mullanphy Hospital on account of an infection of the jaw and neck.

NEW YORK

Pediatric Club Formed.—Physicians of Syracuse, Utica and Oswego have formed a pediatric club with membership limited to fifteen.

New Officers.—Suffolk County Medical Society at Riverhead October 30: president, Dr. Silas K. Corwith, Bridgehampton; secretary-treasurer, Dr. Frank Overton, Patchogue.

Honors Dr. Archambault.—The Medical Society of the County of Albany at its meeting in Cohoes, October 22 adopted resolutions eulogizing the life and medical work of the late Dr. Joseph L. Archambault.

New York City

Personal.—Dr. H. Sheridan Baketel, Manhattan, and Dr. Philip M. Schaffner and Robert I. Bull, Brooklyn, have been appointed instructors in genito-urinary diseases in Long Island College Hospital, Brooklyn.

NORTH CAROLINA.

Prescriptions of Alcohol.—The report of the Asheville police inspection of physicians' prescriptions for alcoholic intoxi-

cants for medicinal purposes during the last fifteen months showed that more than 12,000 prescriptions, the amount varying from a few ounces of brandy to a barrel of beer, were filled by Asheville pharmacists during that period.

Personal.—Dr. Madison Brawley, formerly of Mooresville, who has been spending two years in special study, has located in Salisbury and is associated with his brother, Dr. R. Vance Brawley.——Dr. James D. Croom, Maxton, who has been seriously ill for some time, has recovered and resumed practice. ——Dr. Wilson Pendleton, formerly connected with the state institutions for tuberculosis of Delaware and Connecticut, has been appointed medical director of the State Sanatorium for the Treatment and Prevention of Tuberculosis, Montrose.

OHIO

Physician Obtains Damages.—The court of appeals on October 14 affirmed the decision of the common pleas court, which awarded Dr. Robert G. Noble, Columbus, $5,000 damages for injuries sustained in a collision between his motor car and a street car in July, 1910.

Personal.—Dr. Wallace K. Hughes, Berlin Center, is reported to be critically ill with pneumonia.——Dr. Chalmers D. Morgan, Galion, fractured his left leg in an automobile accident, October 29.——Dr. John W. Hutchens, Sciotoville, fell from a train October 22, fracturing a bone in his right hand.

New Officers.—Seventh Councilor District Medical Association of New Philadelphia, October 30: president, Dr. Alfred C. Beetham; secretary, Dr. James S. McClelland, both of Bellaire. Bellaire was selected as the next place of meeting.—— Columbia Woman's Medical Club, October 28: president, Dr. Mary D. Crane; secretary-treasurer, Dr. Rebecca V. Combs. ——Eighth District Medical Society at Lancaster, October 28: president, Dr. Joseph P. H. Stedem, Newark; secretary, Dr. John R. McDowell, Zanesville. Newark was selected as the next place of meeting.——Northwestern Ohio Medical Association at Findlay, October 15-16: president, Dr. John C. Tritch, Findlay; secretary, Dr. Sidney D. Foster, Toledo.

Hospital News.—To celebrate the completion of the Mercy Hospital, Tiffin, the management of the institution gave a banquet to the medical fraternity of Seneca County October 28.——At a meeting of the trustees of the Miami Valley Hospital, Dayton, the equipment was discussed and it was stated that the new building would be open January 1. Dr. Webster S. Smith was made chief of the regular staff. Drs. W. S. Smith, Carl H. Breidenbach and George P. Dale were appointed to the medical staff; Drs. F. Dale Barker, George Goodhue and William A. Ewing to the surgical staff; Drs. William E. Allaman, Arthur O. Peters and Alonzo H. Dunham to the obstetrical department; Drs. Henry D. Rinehart and Harry B. Harris to the department of the eye, ear, nose and throat; Dr. Ned D. Goodhue was appointed pathologist, and Dr. William H. Delscamp, roentgenologist.

Cincinnati

Bond Issue Voted.—The proposed bond issue for $500,000 to equip the new Cincinnati General Hospital obtained the necessary two-thirds vote at the election November 4.

Forchheimer Memorial.—October 30 a memorial was tendered the late Dr. Frederick Forchheimer by the College of Music. Dr. Forchheimer was a conspicuous figure in musical as well as medical circles.

Schmidt in Cincinnati.—Dr. Adolph Schmidt, professor of internal medicine in the University of Halle, Germany, and editor of the *Zentralblatt für innere Medizin*, was the guest of the Cincinnati Academy of Medicine November 3, and delivered an address on internal diseases. Dr. Henry W. Bettmann gave a dinner and reception in his honor.

Personal.—Dr. George A. Fackler, president-elect of the Ohio State Medical Society, has been reappointed a member of the Cincinnati Board of Health.——Dr. Frank B. Cross has been appointed assistant dean and secretary to the medical faculty of the Ohio-Miami Medical College.——Dr. Edwin W. Mitchell has been appointed professor of medicine in the Ohio-Miami Medical College, Medical Department of the University of Cincinnati, succeeding the late Dr. Frederick Forchheimer.

OKLAHOMA

Fire at State Hospital.—The State Hospital, Supply, was damaged by fire November 3, to the extent of $25,000. No lives were lost.

New Hospital.—Drs. Arthur S. Risser, Allen Lowery and A. P. Gearhart have purchased the Baptist College Building, Blackwell, and after remodeling opened it October 15. The institution will accommodate about thirty-five patients.

Personal.—Dr. J. Q. Newell, Jennings, has been appointed United States marshal for Oklahoma.——Dr. Joseph B. Rolater Oklahoma City, is convalescent after an operation for appendicitis.——Prof. Edward DeBarr, Norman, vice-president of the state university and head of the department of chemistry, has gone abroad.

PENNSYLVANIA

Personal.—Dr. Martin. L. Emerick, Hickory Corners, is reported to be seriously ill at his home with typhoid fever. ——Dr. Samuel A. Woods, Sharon, who was operated on in a Cleveland hospital recently, is reported to be convalescent.

New Officers.—Seventeenth Censorial District Medical Association, tenth annual meeting at Sunbury: president, Dr. Horatio W. Gass, Sunbury; secretary, Dr. Luther B. Kline, Catawissa.——Northumberland District Alumni Association of the University of Pennsylvania at Sunbury: Dr. William H. Krickbaum, Danville, president.

Pellagra in the State.—The physicians of the eastern section of the state have been greately interested and as much puzzled by the appearance of several sporadic cases of pellagra. One patient died of this disease in Chester, October 31, and another patient is now under treatment in Lancaster General Hospital. These cases are the first to be noted in Pennsylvania in ten years. So far thirteen cases have been reported from Pennsylvania, and this state leads, therefore, the other states in the North in the number of cases reported. Massachusetts has had three, New York three and New Jersey one.

Philadelphia

Personal.—Dr. Jay F. Schamberg has succeeded Dr. Emanuel S. Gans, resigned, as visiting dermatologist to the Philadelphia General Hospital.——Dr. James E. Murphy has been appointed resident physician at the Wildwood Sanatorium, Hartford, Conn., vice Dr. W. B. Bartlett, resigned.——Dr. John K. Mitchell was thrown from a horse recently, fracturing his left clavicle.

Memorials.—A new building for the Young Men's Hebrew Association will be erected as a memorial to the late Dr. Lewis Steinbach. Of the $100,000 fund to be raised for this purpose, $60,000 have already been subscribed.——At the regular meeting of the College of Physicians, November 6, a portrait of Dr. Charles T. Hunter, one time a surgeon of the Episcopal University and Pennsylvania hospitals and assistant to the late Dr. Agnew, was presented to the college by Dr. Hunter's sister, Mrs. Byron P. Moulton. The presentation address was made by Dr. George C. DeSchweinitz.

UTAH

Personal.—Dr. Harry B. Forbes, Ogden, has returned after a trip around the world.——Drs. Walter Whalen and Ezekiel R. Dumke, Ogden, are taking postgraduate work in Philadelphia.——Dr. Walter M. Stookey, Salt Lake City, has returned from Europe.——Dr. C. L. Shields, resident physician at the Salt Lake City Hospital, was operated on for appendicitis October 27, and is said to be doing well.

Baby Milk Station in Salt Lake City.—A public milk station was established last spring in Salt Lake City as an experiment. Dr. Robert W. Ashley is in charge of the station, having as assistants two qualified nurses, and a constant supply of milk up to the standard required by the state law. Only a pint of milk is dispensed at a time in order to insure freshness. The containers are sterilized before and after use and are to be kept in ice until returned, and if the home cannot afford ice, the city provides it. Nearly 200 babies have been brought to the station for advice and milk; 200 have been nursed at their homes; 2,000 calls were received from homes by telephone and otherwise and more than 1,200 quarts of milk were supplied free. During the season only thirteen children have died from gastro-intestinal disease. The experiment has been so successful that a concrete building of double the present capacity is being erected.

VIRGINIA

State Health Board Appointments.—The governor on October 31 reappointed as members of the State Board of Health for a period of four years Drs. Stuart McGuire, Richmond; George B. Lawson, Roanoke, and Thomas C. Firebaugh, Harrisonburg.

Consulting Physician for State Hospitals.—The employment of a state alienist who shall be consulting physician to the various state insane hospitals, is proposed in a resolution

now pending before the general board of directors of the state hospitals for the insane.

Health Officers Elected.—The Virginia Public Health Association at its semi-annual meeting in Lynchburg, October 23, elected: Dr. Ferdinand M. Perrow, Lynchburg, president; Drs. Bathurst B. Bagby, Westpoint, and Claude B. Bowyer, Stonega, vice-presidents, and Dr. Lucien Lofton, North Emporia, secretary-treasurer. The next meeting will be held at the University of Virginia in April.

New Officers.—Louisa County Medical Society organized at Fredericksburg, October 27: president, Dr. Eugene Pendleton, Cuckoo; secretary-treasurer, Dr. Thomas M. Taylor, Louisa. ——Pulaski County Medical Society, organized at Pulaski, October 18: president, Dr. Wilson R. Cushing, Dublin; secretary-treasurer, Dr. Richard H. Woolling, Pulaski.——Princess Anne County Medical Society, organized at Princess Anne Court House, October 16: president, Dr. T. B. Luxford, Princess Anne; secretary-treasurer, Dr. Archilles D. Tyree, Virginia Beach.——Norfolk County Medical Society at Norfolk: president, Dr. Edward C. S. Taliaferro; secretary-treasurer, Dr. William P. McDowell, both of Norfolk.

GENERAL

Annual Session of American Medical Association.—At the meeting of the Board of Trustees, held November 7, the question as to the date of the next annual session of the American Medical Association was discussed. The first week in June had been tentatively selected, but it was found that this date was too early for those living west of the Missouri River to receive the benefit of the tourist rates which do not go into effect until June 1st. Unless the date of going into effect of these rates can be advanced, it would probably be necessary to select the fourth week in June—that is, June 22-26, and this date has provisionally been decided on, provided that week is available and the date of the tourist rates cannot be changed. A more definite announcement will be made later.

Southern Surgeons to Meet.—The Southern Surgical and Gynecological Association will hold its annual meeting in Atlanta, December 16-18, with headquarters at the Georgian Terrace Hotel.

Immigration Station at Chicago.—Formal orders were issued November 7 for the establishment of the immigration station in Chicago, authorized by the last congress. The station will be located in the Newberry Building and Dr. P. L. Prentiss will be in charge.

Fraternity Elections.—The Phi Beta Pi Medical Fraternity held its annual meeting at the University of Minnesota, October 25, and elected the following officers: supreme archon, Dr. Berten M. Davey, Lansing, Mich; supreme vice-archon, Dr. Tenny T. Harris, Omaha; supreme secretary-treasurer, Dr. David S. Long, Harrisonville, Mo., and supreme editor, Dr. Wilfred Haughey, Battle Creek, Mich.

Æsculapian Society Meets.—The Æsculapian Society of the Wabash Valley held its sixty-seventh annual meeting in Paris, Ill., October 31 and November 1, and elected the following officers: president, Dr. William J. Fernald, Frankfort, Ind.; vice-president, Dr. Elmer S. Allen, Arcola, Ill., and secretary-treasurer, Dr. Herbert N. Rafferty, Robinson, Ill. (reelected). The society unanimously adopted resolutions commending the *Chicago Tribune* for its expressed attitude toward medical charlatanism.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. John's Hospital, Salina, Kan., a business lot valued at about $8,000, donation by James Madison.

Jefferson Medical College Hospital, St. Christopher's Hospital, Jewish Hospital and the Woman's Hospital, Philadelphia, each $5,000 by the will of Ellen P. Samuel.

Brooklyn City Dispensary, Brooklyn Home for Consumptives, Home for Aged Men and Cripples, Brooklyn Orphan Asylum and the Industrial Home for the Blind, each $2,000, by the will of Frank G. Keeney.

United States Hospital, Fort Chester, New York, $50,000 by the will of William Henry Macy.

The Red Cross Work in Ohio.—The report of the American Red Cross of the relief work incident to the flood along the Ohio River last spring, shows that in the days immediately following the flood, more than 300,000 persons were dependent on relief supplies for food, and 64,161 families consisting of about 256,000 persons, were driven from home and were temporarily dependent for shelter on relief agencies. The flood destroyed 2,691 buildings, and the Red Cross repaired and put into habitable condition more than 10,000 buildings, where the total expenditure in cash by the Red Cross and the various state and local committees was not less than $3,500,000.

Railway Surgeons Meet.—The annual meeting of the Seaboard Air Line Surgeons' Association was held in Montgomery, Ala., October 29 and 30. Petersburg, Va., was selected as the next place of meeting, and the following officers were elected: president, Dr. Joseph M. Burke, Petersburg, Va.; vice-presidents, Drs. Milton L. Wood, Montgomery, Ala., William Armistead Gills, Richmond, and Thomas J. McArthur, Cordele, Ga.; secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga. (reelected).——The eleventh annual meeting of the Surgeons' Association of the Rock Island Lines was held in Chicago November 7. Dr. Henry C. Fairbrother, East St. Louis, was elected president, and Dr. James W. Dreyfus, Louisiana, Mo., vice-president.

Foreign Deaths.—In addition to the deaths reported by our correspondents abroad, the following is noted: Sir John Batty Tuke, M.D., Edinburgh, F.R.C.P. Edinburgh, F.R.S.E., LL.D., D.Sc., formerly representative of the Royal College of Surgeons of Edinburgh on the general medical council; member of Parliament for the Universities of Edinburgh and St. Andrews; Morison lecturer on insanity and mental diseases in the Royal College of Physicians of Edinburgh; the first to use the new histologic methods of staining and section-cutting of the brain in the insane; one of the best-known specialists on nervous and mental diseases with especial reference to insanity; contributor of the articles on insanity and hysteria to the ninth edition of the Encyclopedia Britannica; knighted in 1898 while president of the Royal College of Physicians of Edinburgh; died at his home in that city, October 13, aged 78.

Prevention of Infant Mortality.—Baby specialists from every part of the country will take part in the fourth annual meeting of the American Association for Study and Prevention of Infant Mortality, which opens in Washington, November 14, and will continue in session until November 17. The program will include sessions on eugenics, prenatal care and instruction of mothers, problems of infant hygiene and infant feeding, standards of training for baby welfare nursing, continuation schools of home making and the relation of vital statistics to plans for social betterment. The opening session, which will be devoted to nursing and social work, will be under the chairmanship of Miss Harriet L. Leete, superintendent of nurses of the Babies' Dispensary and Hospital, Cleveland. The American Association for Study and Prevention of Infant Mortality was organized four years ago at a conference called by the American Academy of Medicine and held at Yale University. Through its members it is in touch with men and women in every community who are taking the lead in activities for social betterment. Over eighty societies, each of which is engaged in some phase of baby saving work, are identified with it as affiliated members. These societies represent organized baby saving work that is carried on in nearly fifty cities in twenty-seven states and in Canada. The chairman of the committe on local arrangements is Dr. Samuel S. Adams. Associated with him on this committee are representative physicians, business men and leaders in the betterment activities of the district. Dr. H. L. E. Johnson is chairman of the press committee.

Clinical Congress of Surgeons of North America.—The opening meeting of the fourth annual session of the congress was held at Orchestra Hall, Chicago, Nov. 10, 1913, at 8:15 p. m. Dr. E. Wyllys Andrews, chairman of the committee of arrangements, called the meeting to order, welcomed the members and guests, and then introduced Sir Rickman Godlee, president of the Royal College of Surgeons of England, who said that he had been struck with the enormous amount of clinical material at all of the hospitals. He was impressed with the methodical way in which instruction is carried on, and with the methodical way in which subjects are handled in Chicago. Dr. Murray McLaren, Canada, president of the Canadian Medical Association, congratulated the officers and members of the congress on the remarkable success which had attended the organization from its very inception.

Professor Kronig, Freiburg, Germany, and Dr. C. J. Gauss, Freiburg, Germany, also spoke, referring to the great work that is being accomplished by the congress, and thanked the American members on behalf of their German colleagues for the hospitality, courtesies and kindnesses shown them.

Dr. John B. Murphy expressed the opinion that it is a desire to disseminate and assimilate knowledge that made the organization and which has accentuated the fact that clinical teaching in the future is going to be the dominant part of American and every other type of medical education.

Dr. Charles A. L. Reed, Cincinnati, called attention to the work of the American Medical Association and the fact that

in numbers it stands at the head of all medical organizations of the world; moreover, that the papers and proceedings of the Association are disseminated all through the profession through the avenue of THE JOURNAL.

The presidential address by Dr. George Emerson Brewer, New York City, concerned "A Preliminary Report on a Simple and Rapid Method of Pyloric Closure in Gastro-Enterostomy."

Dr. Harvey Cushing, of Boston, reported 156 cases of operations on the gasserian ganglion with two fatalities, which occurred in the earlier cases.

The paper was discussed by Dr. John B. Murphy, Chicago.

FOREIGN

Death of Klebs.—Edwin Klebs, the veteran pathologist and bacteriologist, died at his home in Dortmund on October 21. The passing of this eminent man, once a professor of pathology in the Rush Medical College, removes one of the last of the original champions of the bacterial theory of infection. A native of Königsberg and a cousin of Leyden, Klebs had followed Virchow's lectures at Würzburg and became his assistant at Berlin in 1861. After attaining his professorship at Bern in 1866, his scientific career was that of a peripatetic. He held in succession the chairs of pathology at Würzburg (1872), Prague (1873), Zurich (1882), Chicago (1896), and during his period of retirement resided variously at Carlsruhe, Hannover, Berlin, Lausanne and Dortmund. His treatises on pathology (1869-76), in particular the larger *Allgemeine Pathologie* (1887-89), are highly esteemed by the masters of this science as solid thorough-going works of enduring value. But he will be best remembered in the future as the path-breaker and the precursor. His name is permanently associated with the discovery of the diphtheria (Klebs-Loeffler) bacillus, which he was the first to see and to recognize as the cause of the disease (1883), while Loeffler tried the organism out by Koch's postulates and dissociated it from the bovine and avian varieties (1884). Not only did Klebs see the typhoid bacillus before Eberth (1881), but he antedated Koch by seven years in the bacteriologic investigation of the traumatic infections (1871) and also made solid cultures before him. Klebs was the first to investigate the bacteriology of gunshot wounds (Franco-Prussian war, 1871-72), was on the threshold of the theory of filterable viruses in his studies of anthrax (1871), made some of the initial studies on mycotic and experimental endocarditis (1875), first produced bovine infection of perlsucht by feeding with milk (with Gerlach, 1873), and, in 1900, he first attempted to treat tuberculosis with the bacilli of cold-blooded animals, the species selected being the sloe-worm bacillus *(Blindschleichenwurmbacillus)*. Indeed, Klebs will always be recognized in medical history as having done most to get the pathologists away from the solidist views of Virchow by emphasizing the fact that post-mortem findings are, after all, only end results and that true causation of infectious diseases is to be sought in parasitic agents coming from the outside world. A broad-browed, broad-minded savant of the Prussian type, it was his temperamental peculiarity to fling himself into the "imminent deadly breach" and break many a pathway, leaving it to others to follow up and complete his work.

CANADA

Personal.—Dr. Joseph N. Roy, Montreal, has gone on a pleasure trip to Argentine, Peru and Chili.——Dr. J. Y. Ferguson, Renfrew, Ontario, who has been in Japan for several years as a medical missionary, is home on furlough.——Dr. F. F. Carr Harris, Toronto, has entered the missionary service at Honan, China.

Hospital News.—Montreal has just started erecting a new Foundling and Baby Hospital. Up to May 1 last the citizens contributed $42,000 for the purposes of such hospital, and as Colonel Burland and his sisters had agreed to duplicate any amount raised from the citizens, the total collection amounted to $85,000, sufficient to warrant the hospital authorities in commencing building operations. The new institution will provide for several times the accommodation of the old one, which was forty-two patients. A milk station will be run in connection with the hospital and a special and prominent feature will be a school of instruction in the caring of babies. The foundling hospital was started twenty-two years ago, and the death rate during the first year was 80 per cent. Last year the death rate was 13½ per cent. During the six months just past but one baby died out of fifty, while 400 were refused admission owing to lack of room. The hospital has demonstrated that much good work can be accomplished along this line in preventing infant mortality in Montreal.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Oct. 31, 1913.

Lucas-Championnière and Prehistoric Trephining

Dr. Lucas-Championnière, whose death I mentioned in my previous letter and who was the author of important works on trephining guided by cerebral localizations, was interested in the study of prehistoric trephining. This was the subject of the lecture which he was to have given October 25, as a delegate of the Académie des Sciences, at the annual public session of the five academies. In this, after reviewing more or less fantastic hypotheses of the reason for this practice, he adopted a much more simple and plausible interpretation. Among all primitive peoples fractures of the skull are frequent. When splinters of the bone are driven into the head, men are often led to pick out these splinters for the sake of curing the terrible pain of intracranial pressure. Gradually, having very crude ideas of the relation of cause and effect and no ideas of anatomy, primitive man is led to open the skull of other subjects who have similar pains. Centuries confirm his practice of intervention. Exact and repeated observations lead him to fix on the technic of opening the skull for those pains which characterize intracerebral tension in the course of various diseases. This fact is the less surprising because savage or barbarous peoples have not the same aversion to surgical operation as civilized persons. Pronounced insensibility, habituation to traumatism, the resignation of the patient overcome with pain, and even curiosity, contribute to make savages accept an operation with less fear than civilized persons. Such distrust as they may have felt probably disappeared the more easily, because, whatever may be thought of it by surgeons who lose their patients by purulent infection, the mortality was very low. Recovery and relief from pain was the rule. It is still so among the Kabyles. During the visit of Lucas-Championnière to Biskra thirty years ago, a man showed him four perforations in his own head, and gave him exact details of the operation, in which he had great confidence, for, as he said, his brothers and himself had been trephined twelve times by their own father. These operations are performed especially for terrible pains of the head. This man said to Lucas-Championnière that if the latter would stay three days longer, he would certainly be able to find some one to perform a trephining operation before him.

The Disadvantages of White Flour

At one of the last sessions of the Société de thérapeutique, Dr. Monteuuis read a paper showing the superiority of old-fashioned flour over patent process flour. The first is merely wheat ground fine, in which 20 per cent. of the envelopes are removed in the form of coarse bran. This is the flour which makes natural bread, farm bread, old-fashioned bread. In "patent" flour there is removed from the wheat not only the coarse bran but the fine bran and the germ. The first layer of the wheat berry, the richest in all points of view, is entirely removed and used for feeding cattle. The second layer is partially removed and used for brown bread. Fine white bread contains only the inner portion; that is to say, about one-half the grain is sacrificed, and this waste costs France 400,000,000 francs ($80,000,000) a year. From the point of nutrition, the old-fashioned flour is not only superior but it is better digested and is the mineralized food par excellence.

The Twenty-Sixth Annual Meeting of French Surgeons

This meeting was held in Paris, October 6 to 11, under the presidency of Dr. E. Kirmisson, professor of clinical surgery of the diseases of children in the Faculté de médecine de Paris. His opening address was on the subject of orthopedic surgery.

TREATMENT OF HEAD WOUNDS MADE BY SMALL PROJECTILES

Two papers were devoted to it, one by Dr. H. Billet, military physician, on wounds made by war projectiles, the other by Dr. A. Demoulin, surgeon of the hospitals of Paris, who considered only the wounds of civil life.

In war the indication for operation is hemorrhage, or signs of cortical irritation. In uncomplicated perforation in which the projectile lodges in the head, the general rule is to refrain from operation, but it is necessary to watch over the patient carefully, for often an operation is warranted later. Tangential wounds, on the other hand, imperatively demand active and early operation, even in the frequent cases in which

the symptoms are not alarming, for secondary infection here is the rule. In fact, statistics prove that the mortality is 20 per cent. if operation is not performed. Operation ought to be performed only when facilities for operation with perfect asepsis are obtainable. Secondary operation is necessary under three circumstances: (1) to ward off infection (the ordinary case); (2) to extract a projectile or foreign body; (3) to treat one of the late complications which darken the prognosis.

In civil life the usual wounds are those of automatic revolver bullets. If the patient has just been wounded, the wound should not be explored, and the region of the wound should merely be disinfected with tincture of iodin and dressed aseptically. When conditions permit of aseptic surgery, preventive trephining should at once be performed, the lesions should be followed step by step, the focus cleansed, splinters of bone removed, and the bullet extracted; but one should not exceed the limits of the wounded nervous zone. When, after preventive trephining, lumbar puncture shows infection of the cerebrospinal fluid, the fluid should be evacuated daily, and if the symptoms do not tend to disappear, the skull should be opened in order to drain the subarachnoid space. When the bullet has not been removed and becomes troublesome, operation is expressly indicated; but if the projectile is broken into a number of fragments which apparently cannot be removed by a single orifice, trephining operation is contra-indicated in spite of the seriousness of the symptoms.

Professor Lejars of Paris agreed with Dr. Demoulin in thinking that in non-military wounds of the head caused by small projectiles, even though they appear to be benign, it is always necessary to operate. Professors J. Vanverts and Auvray, *agrégés* at Lille and at Paris, respectively, also agreed; but the latter believed that the operation ought to be as simple as possible, and the brain not compressed by a tampon under the pretext of drainage. One drain is enough. Dr. Oser of Vienna, on the other hand, did not believe that it was necessary to operate in all cases, but only if clinical symptoms were present. Dr. Peugniez of Amiens remarked that care should be taken not to disturb the skull after roentgenoscopy, for the projectile may become displaced in the course of operation.

Dr. Willems of Ghent, who was on the ambulance staff in Servia, said that the Balkan War had demonstrated the value of the evacuation of the wounded all the more in that country where there were no means of rapid communication, and the distance of the battle-fields was great. Most of the wounded who were thus removed were benefited. Professor Delorme, medical inspector general of the service of military hygiene, however, did not agree, at least so far as head wounds were concerned. He thought it better to operate in the ambulance or near the battlefield. This also was the opinion of Dr. LeFort, professor *agrégé* at the Faculté de médecine de Lille, who observed that in the Balkans soldiers wounded in the head and sent to the rear without operation arrived there too late to be operated on.

An Atoxic Antigonococcic Vaccine

At a recent session of the Académie des Sciences, Dr. Charles Nicolle, director of the Pasteur Institute of Tunis, and Dr. L. Blaizot presented an interesting paper on an atoxic antigonococcic vaccine which they had prepared. During the seven years that vaccine treatment of gonorrhea and its complications has been attempted, this method has not yet won the favor of the medical profession. Experimenters up to the present have been unable to surmount the difficulty presented by the toxicity of vaccine. Nicolle and Blaizot have succeeded in completely suppressing the toxicity of antigonococcic vaccines while obtaining a stable product which preserves its therapeutic properties indefinitely just as serum does. Their method is applicable to other microbes. They are reserving the publication of the method until their experiments shall have been finished. The curative power of the atoxic vaccine is considerably increased. When inoculated in small doses, like other vaccines, it produces a much more rapid cure. In larger doses it shows a greater efficacy without causing the least local or general reaction. Its efficacy is shown by the following statistics: Twenty-four cases of gonorrheal ophthalmia have all resulted in cures in from three to ten days, the inoculations being repeated every day or every other day; 20 patients with gonorrheal orchitis were cured by from four to six inoculations repeated every other day; 3 patients with gonorrheal rheumatism were cured after from two to eight inoculations repeated every two or three days; 127 patients with acute or chronic urethritis were cured rapidly after seven or eight inoculations.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Oct. 24, 1913.

Personal

Professor Steyrer of Greifswald has been called as director of the medical clinic in Innsbruck as successor of Professor Schmidt, who has been called to Prague.

Professor Michaud of Kiel has been appointed in place of the deceased Bourget, as professor and director of the medical clinic in Lausanne.

Annual Meeting of German Neurologists

At the annual session of the Society of German Neurologists, held under the presidency of Professor Oppenheim of Berlin early in October, Professor Lewandowsky of Berlin made a report on a collective investigation regarding the position of neurologists in the universities, hospitals, etc., and called attention to the small number of professorships for this specialty and of clinics available for neurologists, and noted the fact that in this respect Germany is excelled by Russia and other countries.

Ehrlich, v. Wassermann and the Vienna pharmacologist, Hans Horst Meyer, were elected honorary members of the association.

The Erb medal, which is awarded every three years for merit in the field of nerve therapy, was received this year by the neurologist, Docent Dr. Barany of Vienna.

DEGENERATIVE PROCESSES IN THE NERVOUS SYSTEM

This was the first subject on the program and it was presented by Professor Alzheimer of Breslau. Elements of the central nervous system which have degenerated, are converted into simpler chemical products by the help of the cells of the connective tissue, and are removed from the nervous tissue. This decomposition *(Abbau)* is accomplished in various ways according to the form of the injury and the extent of the nervous tissue injured. Four forms of decomposition processes can now be distinguished: (1) the mesodermal form of decomposition, which is produced by the cells of the connective tissue, in case a circumscribed part of the nerve tissue together with connective tissue is destroyed (wound, hemorrhage, etc.); (2) the ectodermal form of decomposition by elements of the glia, either (*a*) by the glial granular cells in case of the destruction of the medullary sheath without injury to the neuroglia (secondary degeneration, disease of the tracts in the cord, etc.), or (*b*) by the action of ameboid glia cells, especially in severe infections and intoxications, or (*c*) by the glia cells present without the new formation of special kinds. In addition to these, there are other forms of decomposition which have not yet been fully explained. The study of the decomposition processes with the new methods introduced by Alzheimer into the histopathology of the nervous system, have very markedly increased the possibility of recognition of the anatomic bases for mental and nervous diseases; it permits the recognition of the destruction of separate nervous elements, even in cases in which with the older methods lesions could not be demonstrated. The recognition of the connection between various striking histologic features as stages of the same pathologic process, and estimation of the age of pathologic lesions are also made possible by the application of the newer methods.

AMAUROTIC IDIOCY OF LATE INFANCY WITH CEREBELLAR SYMPTOMS

Professor Bielschowsky of Berlin discussed this form of family amaurotic idiocy of which hitherto not much has been known. It assumes a peculiar position because in the clinical picture and in the pathologic findings the indications of hereditary cerebellar ataxia are pronounced in addition to the typical pathologic signs of amaurotic idiocy.

SYPHILIS IN CONNECTION WITH TABES AND PARALYSIS

According to Professor Erb of Heidelberg, metasyphilis is to be regarded, in view of recent investigations, as a genuine syphilitic disease, although of a peculiar character. One of the chief problems consists in the investigation of the biology of the *Spirochaeta pallida* (different races, the changes which the same undergo in repeated passage, by antigens, special predisposition of the host, etc.). The occurrence of nervous syphilis can, with little doubt, be referred to the neurotropic peculiarities of certain races of spirochetes. With reference to the pathogenesis of gliovascular and purely degenerative changes there are still differences of opinion. For the former, a direct action of the spirochetes is probable.

STUDY OF PAIN, ESPECIALLY AMONG THE NEUROTIC

Oppenheim of Berlin called attention to the fact that in diseases of the glands of internal secretion, such as exophthalmic goiter, for instance, pain may precede the other symptoms for years. This can probably be referred to a diminished or increased secretion of some gland or glands, or to the production of chemically irritating materials (hormones). The same explanation may apply also to the algias (painful conditions) of the menopause, of paralysis agitans and many acroparesthesias.

The pains in hysteria and neurasthenia have various origins. There are psychic forms (psychalgias) both ideogenous, as, for instance, the fear of cancer, as well as emotional; generally these two factors are united. More frequent than the pure psychalgias are forms of pain which have a physical basis (local irritations, fatigue, traction on muscles, gastro-intestinal disturbances, gout, diabetes, etc.); but the hyperesthesia, focusing of the attention, persuasion and increased introspection of the morbidly nervous transform their slight temporary pains into permanent painful affections. An essential rôle is played in these cases also by the vasomotor diathesis with its tendency to cramps of the vessels, and further the inherited transmission of pains in the direct or transferred form.

Von Frankl-Hochwart of Vienna called attention to the fact that pains of psychic origin do not recur in dreams as is the case when they proceed from an organic basis. Dubois of Bern stated that he has been able sometimes to relieve and cure pain by his method of explanation and persuasion, even in cases of pain apparently permanently rooted for fifteen years, which had defied all other methods. On the other hand, Trömner insisted that there is much of suggestion in the action of Dubois' method, which the latter energetically denied. The convincing of the person, persuading him to see the matter in its proper light, are the effectual elements, and the personality cooperates with it. With suggestion, as Dubois emphasized, it is necessary to instill into the patient opposing ideas. Oppenheim, in conclusion, insisted that the method of Dubois of simple explanation and instruction is not sufficient in many cases of neurosis.

MENINGITIS WITH APPARENTLY NORMAL CEREBROSPINAL FLUID

In the febrile diseases of children, Professor Förster of Breslau has frequently observed a severe clinical picture of meningitis without change in the lumbar-puncture findings. After the disappearance of the meningitic symptoms there remained a cerebellar disturbance of the gait which also after weeks and months completely disappeared. The cases were in tuberculous children.

EXOPHTHALMIC GOITER IN MEN

Mendel and Tobias of Berlin discussed Basedow's disease in men. Men are less frequently affected with this disease than women (in the proportion of 1:6), and in general at a later age. The thyroid may be little, if any enlarged, but the sexual functions, in contrast with women, are rather diminished; early arteriosclerosis frequently occurs as a complication and pronounced psychoses are more common in men. Internal therapy is, as a rule, sufficient.

SERODIAGNOSIS IN NEUROLOGY

Golla of Breslau gave the results of Abderhalden's serodiagnosis in brain and spinal-cord diseases. The serum from fifty-eight persons with organic brain or spinal-cord disease was investigated. In a number of these, the process showed a fermentative destruction of the nerve tissues. This condition was almost constant in paralysis, in which, in contrast to other organic processes, other organs also were digested.

Alcohol and Responsibility in the Academic Course

The faculty of the University of Bonn have posted the following notice on the blackboard: "Among the cases of discipline coming before us for decision, we again and again have the experience that the students present the excuse that they were drunk or so drunk that they did not know what they were doing. Some recent instances of this impel us to give notice that we are not accustomed to give any weight to this form of defense in general, and do not recognize drunkenness as a ground of extenuation. The students of the university fortified by a long course of training in character, must be expected to have reached such a degree of self-control and strength of will that they do not lose control of their sense, and of their actions by excessive use of alcohol. If the student acts contrary to this duty, he must bear the consequences."

Marriages

CHARLES S. RYTTENBURG, M.D., Port Chester, N. Y., to Miss Anita Lazaron of Mount Auburn, Cincinnati, October 27.

WILLIAM JOHNSON BASS, M.D., Paducah, Ky., to Miss Charlotte Cecelia Dean of Henderson, Ky., October 22.

JOHN GEORGE MUELLER, M.D., to Miss Margaret Corridan, both of Iowa City, at Des Moines, Ia., October 27.

AUGUSTINE CHARLES LUHR, M.D., St. Marys, Pa., to Miss Mary Gertrude Wall of Pittsburgh, October 15.

CHARLES PULFORD FORWARD, M.D., Dubuque, Ia., to Miss Myrtle Anne Gilstrap of St. Louis, June 29.

ARTHUR PRESTON FLOWERS, M.D., to Miss Margaret Louisa Ashford, both of Atlanta, Ga., November 8.

ROBERT TURNER, M.D., Paris, France, to Miss Marjorie Pope of Brookline, Mass., in Paris, October 23.

MARIE KIRBY HOPKINS, M.D., Gloversville, N. Y., and Walter Humphrey, in Castile, N. Y., October 20.

ADOLPH E. DETUNCQ, M.D., Scandinavia, Wis., to Miss Marvel Drewry of Milwaukee, September 20.

SAMUEL CALDWELL BENEDICT, M.D., Athens, Ga., to Mrs. Kate Taylor of Macon, Ga., October 23.

GEORGE WILLIAM PRICHARD, M.D., Omaha, to Miss Ina Fogelstrom of Wahoo, Neb., October 29.

CHARLES WILLIAM PACE, M.D., to Miss Effie Coppage, both of Hot Springs, Ark., October 12.

WILLIAM HENRY TIPPIE, M.D., to Mrs. Anna R. Ullery, both of Terre Haute, October 25.

HENRY STINE WEIGLE, M.D., Harrisburg, Pa., to Miss Esther Noble of Muncy, Pa., October 25.

ROBINSON BOSWORTH, M.D., St. Paul, Minn., to Miss Russell Sprake of Chicago, November 3.

JOHN ROBINS BLAIR, M.D., to Miss Ethel May Smith, both of Richmond, Va., October 22.

JOHN GUIRLEY MISSILDINE, M.D., to Miss Sara Taft, both of Parsons, Kan., October 15.

ARCHIBALD B. ELKIN, M.D., to Miss Amelia Sturgeon, both of Atlanta, Ga., October 21.

JOHN H. MCCOOL, M.D., to Miss Katharine Blackwell, both of Indianapolis, October 15.

CHARLES M. GEORGE, M.D., to Miss Mary E. Yorks, both of Detroit, Mich., October 28.

Deaths

Charles McBurney, M.D.—Four weeks ago THE JOURNAL chronicled the death of Dr. Reginald Heber Fitz, who called attention to the pathology of appendicitis and thus opened the way to a clearer understanding of the disease and the possibility of its cure by surgical means. To-day we note the death of Dr. Charles McBurney, whose operative work in appendicitis brought him into great prominence during his years of active work, and whose recognition of a point of localized tenderness in appendicitis has made McBurney's point known the world over.

Charles McBurney was born in Roxbury, Mass., Feb. 17, 1845, the son of Charles and Rosine Horton McBurney. He received his academic training in Harvard, from which he received the degree of A. B. in 1866, and that of A. M. in 1869. His medical course was taken at the College of Physicians and Surgeons, Columbia University, New York City, from which he was graduated in 1870. His teaching work commenced in his alma mater in 1872 as assistant to and demonstrator of anatomy from 1872 to 1889. During a portion of this period from 1878 to 1882, he was lecturer on anatomy of the nerves and surgery. In 1889 he was made professor of surgery; three years later professor of clinical surgery, and in 1907 he became emeritus professor of surgery.

During his forty years of practice in New York City he was a member of the visiting or consulting staff of many hospitals. He was a Fellow of the American Medical Association, an honorary Fellow of the Royal College of Surgeons, Edinburgh, a member of the New York Academy of Medicine, the Surgical Society of Paris, the Roman Medical Society, the Medical and Surgical Society of Constantinople, and many other learned

bodies. His first contribution to the medical literature of appendicitis appeared in 1889 when he published an essay on "Experience With Operative Interference in Cases of Disease of the Vermiform Appendix."

For several years Dr. McBurney had been retired from practice and resided in Stockbridge, Mass. From his home in this place he was summoned to Buffalo in 1901 as a consultant when President McKinley was shot.

He died suddenly from heart disease at the home of his sister in Brookline, Mass., November 7, aged 68.

In addition to his work in appendicitis which brought to American surgery recognition from the entire world, Dr. McBurney was a pioneer in aseptic technic.

Jesse S. Myer, M.D. Marion-Sims College of Medicine, St. Louis, 1896; a Fellow of the American Medical Association; lecturer on physiology and clinical chemistry and microscopy in St. Louis University from 1898 to 1902; assistant instructor and lecturer on clinical chemistry and microscopy from 1901 to 1912 and associate in medicine thereafter; visiting physician to the St. Louis City Hospital; associate physician to the Jewish Hospital and physician to out-patients in Washington University Hospital; author of a biography of Dr. William Beaumont; died at his home in St. Louis, October 29, from leukemia, aged 40.

Charles Buckner Hardin, M. D. Kansas City (Mo.) Medical College, 1881; Bellevue Hospital Medical College, 1883; a Fellow of the American Medical Association; formerly president of the Jackson County Medical Society and the Kansas City Academy of Medicine; for several years professor of hygiene and state medicine in the Medico-Chirurgical College of Kansas City; died at his home August 31, aged 56.

Samuel Hughes Chute, M.D. Medical College of Ohio, Cincinnati, 1851; since 1857 a resident of St. Anthony and Minneapolis, Minn.; supervisor of the poor and city treasurer of St. Anthony; a member of the city council of Minneapolis for several terms, and a member and president of the board of education; died in St. Mary's Hill Sanitarium, Milwaukee, October 12, aged 83.

Oscar Chrysler, M.D. Detroit College of Medicine, 1892; a Fellow of the American Medical Association; assistant surgeon at the National Soldiers' Home near Milwaukee, Wis., until 1902, and since that time chief surgeon of the institution; was killed in an explosion that wrecked the sterilizing apparatus in the basement of the hospital, October 29, aged 48.

Isaac N. Snively, M.D. Jefferson Medical College, 1863; formerly a member of the American Medical Association; a member of the Medical Society of the State of Pennsylvania, and the Western Maryland Railroad Surgeons' Association; local surgeon of the road at Waynesboro, Pa.; died at his home October 31, from cerebral hemorrhage, aged 74.

Henry Archer Mettauer, M.D. Randolph-Macon College, Prince Edward Court House, Va., 1849; a pioneer practitioner of Macon, Ga., where he had practiced for more than sixty years; one of the old Southern school of gentlemen; a family doctor, universally beloved; died at his old home in Farmsville, Va., October 22, aged 87.

James Thomas Harris, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1877; a member of the Medical Society of the State of California; at one time coroner and physician of Santa Clara County, and for several years city physician of San Jose; died at his home October 31, from cerebral hemorrhage, aged 75.

Hugh Logan, M D. Washington University, St. Louis, 1872; a Fellow of the American Medical Association, and a pioneer physician of Eastern Oregon; local surgeon for the Oregon-Washington Railway and Navigation Company at The Dalles for several years; died at his home, October 27, from pneumonia, aged 63.

Edith Earle Eayre Keisker, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1908; a medical inspector of public schools of Philadelphia who was making a study of scarlet fever in the municipal hospital, contracted the disease, and died in that institution, October 24, aged 35.

Stewart L. Henry, M.D. Tulane University, New Orleans, 1866; for forty years a practitioner of Orleans Parish, and for several terms a member of the state legislature; a surgeon of U. S. Volunteers during the Civil War; died at his home in Carrollton, New Orleans, October 11, aged 79.

Samuel Senseny Huber, M.D. Jefferson Medical College, 1865; for many years a practitioner of Brooklyn; assistant surgeon of U. S. Volunteers during the Civil War; died at his home in Brooklyn, October 16, aged 76.

Charles E. Goldsborough (license, Adams County, Pennsylvania, 1881); surgeon of U. S. volunteers throughout the Civil War; a practitioner since 1856; one of those who crossed the continent to California in 1849; died at his home in Hunterstown, October 20, from acute gastritis, aged 78.

William A. Jones, M.D. Hahnemann Medical College, Chicago, 1883; a member of the State Medical Society of Wisconsin; for four years postmaster of Oconomowoc; died in St. Mary's Hospital, Milwaukee, October 31, from cerebral hemorrhage, a week after an operation for appendicitis, aged 56.

Edmund T. Allen, M.D. Cleveland University of Medicine and Surgery, 1881; Hahnemann Medical College, Philadelphia, 1886; a Fellow of the American Medical Association; once secretary of the Nebraska State Board of Health; died suddenly at his home in Chicago, August 17, aged 57.

William Anderson Mitchell, M.D. Yale University, New Haven, Conn., 1865; a veteran of the Civil War; since 1873 an officer of the Safe Deposit Company of New York, and at the time of his death its second vice-president; died at his home in Brooklyn, September 26, aged 71.

Frederick Eugene Wadhams, M.D. Rush Medical College, 1878; a member of the Illinois State Medical Society, and for 56 years a resident of Chicago; for several years local surgeon for the Chicago and Northwestern Railroad; died at his home in Chicago, November 1, aged 60.

William Allen Tremaine, M.D. Harvard Medical School, 1883; a member of the Maine Medical Association; of Rockport, Me., for twenty years a practitioner of Providence, R. I.; died at the Evans Memorial Hospital, Camden, Me., recently, from carcinoma of the throat, aged 60.

Oliver G. Comstock, M.D. Toledo (Ohio) Medical College, 1884; a member of the Ohio State Medical Association; formerly city physician and a member of the board of education of Toledo; died at his home in that city, October 28, from heart disease, aged 58.

William John McKay, M.D. Manitoba Medical College, Winnipeg, 1899; medical health officer of Saskatoon, Sask., who was doing postgraduate work in sanitation in London; died in University College hospital, London, August 6, from pleurisy, aged 39.

Forrest Glenmore Crowley, M.D. Yale University, New Haven, Conn., 1912; house surgeon at St. Raphael's Hospital, New Haven; died in that institution, October 8, from disease of the intestine, for which operation was performed without avail, aged 33.

Edward H. Bartlett (license, Maryland); a surgeon in the confederate service during the Civil War; once postmaster of Oakland; superintendent of schools and clerk of the school board of Garrett County; died at his home in Oakland, October 2, aged 83.

Morris Ramsey Bowie, M.D. University of Maryland, Baltimore, 1908; a Fellow of the American Medical Association and a prominent practitioner of Gunnison County, Colorado; of Somerset, Colo.; died in Los Angeles, October 21, aged 27.

Timothy Miles Leatherwood, M.D. University of Alabama, Mobile, 1891; of Tuscaloosa; a member of the Medical Association of the State of Alabama; died in Asheville, N. C., October 25, from tuberculosis, aged 50.

Edward Camplin Hill, M.D. Washington University, St. Louis, 1863; for many years a practitioner of Buchanan County, Missouri; died from heart disease in the county court room in St. Joseph, October 20, aged 76.

John W. Hudson, M.D. Memphis Hospital Medical College, 1886; University of Louisville (Ky.), 1889; for several years postmaster of Milano, Tex.; died at his home in that city, October 19, from typhoid fever, aged 68.

Oscar Eugene Harris, M.D. Medical College of Ohio, Cincinnati, 1890; of Wynne Ark., and president of the Cross County Bank; died in the Baptist Memorial Hospital, Memphis., Tenn., August 20, aged 53.

John F. Lohrs, M.D. Keokuk (Ia.) Medical College, 1896; died at his home in Highland, Wis., July 26, from the effects of a gunshot wound of the chest, self-inflicted, it is believed, with suicidal intent, aged 39.

Chester Belding Jennings, M.D. Hahnemann Medical College, Philadelphia, 1881; a member of the school board of Reading, Pa., for fifteen years; died at his home in that city October 10, from diabetes, aged 57.

John W. P. Harrod (license, Arkansas, 1905); of Olmstead, was shot and killed by the husband of a patient near Olmstead October 10, aged 33.

Grover Cleveland Edwards, M.D. Atlanta (Ga.) School of Medicine, 1913; of St. Petersburg, Fla.; house physician at the Wesley Memorial Hospital, Atlanta; died in that institution, August 5, aged 27.

Newton S. Matthews, M.D. Medical College of Ohio, Cincinnati, 1880; a member of the Kentucky State Medical Association; died at his home in Williamstown, Ky., October 28, from heart disease, aged 62.

W. H. H. Crow (license, Missouri, 1883); a practitioner of Monroe County, Missouri, for 65 years; died at the home of his daughter in Kirksville, Mo., September 20, from cerebral hemorrhage, aged 89.

James F. Mock (license, Indiana, 1897); for thirty years a practitioner of Marion; once a representative from Madison County in the state legislature; died at his home in Marion, October 5, aged 76.

Edward Enos Hopkins, M.D. University of Buffalo, N. Y. 1906; a practitioner of Rochester until compelled to retire on account of ill health; died at his home in Honeoye Falls, October 24, aged 31.

H. K. Legge (license, Arkansas, 1903); a practitioner for more than forty years and a Confederate veteran; died at his home in Garfield, Ark., September 21, from senile debility, aged 83.

Alba G. Blanchard, M.D. Eclectic Medical Institute, Cincinnati, 1882; a member of the Illinois State Medical Society; died at his home in Creston, October 28, from diabetes, aged 65.

Elmer E. Lamb, M.D. Eclectic Medical University, Kansas City, Mo., 1911; professor of orthopedic surgery in his alma mater; died at his home in Kansas City, October 8, aged 48.

John A. Fritz, M.D. California Eclectic Medical College, Los Angeles, 1895; of San Francisco; died in the municipal tuberculosis hospital, September 26, from tuberculosis, aged 53.

Armatus S. Holland, M.D. Chicago Homeopathic Medical College, 1896; for many years a practitioner of Chicago; died at his home November 2, from cerebral hemorrhage, aged 71.

Lawrence David Hyde, M.D., Cooper Medical College, San Francisco, 1906; of Visalia, Cal.; died in the German Hospital, San Francisco, September 24, from tuberculosis, aged 31.

William Herbert Lynn, M.D. Rush Medical College, 1877; of Hastings, Neb., and at one time coroner of Adams County; died in Ingleside Hospital, October 18, from pneumonia.

John Franklin Ford, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1883; died at his home in Waggoner, Ill., August 30, from carcinoma of the pancreas, aged 61.

Leo Henry Hartzell, M.D. Jefferson Medical College, 1913; died in the Philadelphia Municipal Hospital, in which he was an intern, from scarlet fever, October 12, aged 22.

George M. Howe (license, Kansas, 1909); of Wichita, Kan., and later of Kansas City, Mo.; died in Oklahoma City, Okla., September 26, from heart disease, aged 42.

George L. Lee, M.D. College of Physicians and Surgeons, Baltimore, 1882; died at his home in Center Hall, Pa., August 7, from carcinoma of the liver, aged 60.

James Polk Fox, M.D. Chicago Medical College, 1875; for eight years United States pension examiner; died at his home in Gaylord, Mich., October 9, aged 65.

Louise Anna Kortbein, M.D. Cincinnati College of Medicine and Surgery, 1886; died at her home in Cincinnati, October 4, from cerebral hemorrhage, aged 62.

James N. Mitchell, M.D. Vanderbilt University, Nashville, Tenn., 1881; was found dead from heart disease, on his farm near Plumerville, Ark., October 3.

Harry William Hyatt, M.D. New York University, New York City, 1898; of New York City; died in St. Luke's Hospital, October 23, aged 39.

Gotthard Hirsemann, M.D. Long Island College Hospital, Brooklyn, N. Y., 1888; died at his home in Highland Mills, N. Y., October 6, aged 63.

William E. Hathaway, M.D. Pulte Medical College, Cincinnati, Ohio, 1889; died at his home in Cincinnati, October 8, from nephritis, aged 68.

William P. Manaton, M.D. New York Homeopathic Medical College, New York City, 1886; died at his home in Greenport, N. Y., August 6, aged 48.

Fred Benniman Gale, M.D. University of Vermont, Burlington, 1880; died at his home in Plainfield, September 21, from heart disease, aged 60.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BAUGHN'S PELLAGRA REMEDY

A Worthless Nostrum Sold Under Fraudulent Claims

"Pellagra Cured!" This, in letters an inch high, is the title of a gaudy-covered booklet sent out by "Dr. G. P. Baughn—American Compounding Co., Jasper, Alabama." The "cure" in this instance is "Baughn's Pellagra Remedy." The greater part of the booklet is devoted to testimonials. The balance of it is written in the most approved "scare" style and is to the tenor that 20,000 people are suffering from pellagra and that the only hope for the victims of the "grim specter, stalking unseen up and down the land, touching with the icy hand of death the young child playing in the sun, the devoted mother crooning o'er her babe, the father toiling in the field"—is "Baughn's Pellagra Remedy"!

This book is apparently intended to convince the public that every vague ache and pain is a symptom of pellagra. "How," asks Baughn, "may you recognize this monster before his grasp on your body makes all your struggles futile?" The answer is forthcoming:

> "Have you a feeling of nervous exhaustion and lassitude?
> "Have you unusual bowel disturbance and diarrhoea?
> "Have you pains and aches for which there seem no cause?
> "Have you headaches and vertigo difficult to explain?"

If you have any of these, the inference is that the "grim specter," pellagra, has you in its grasp! Horror is piled on horror in the most approved "patent medicine" style, reaching as a grand climax a description of "the last stages" and closing with the peroration:

> "And the last stage, till now—the MAD HOUSE and DEATH."

Of course the escape from this catastrophe is Baughn's nostrum.

> "Like a guardian spirit my remedy stands between you and this hitherto unconquered disease—thrusting off its hideous grasp, healing your body and filling you again with the JOY of living. Even the most stubborn cases yield readily to this miraculous cure. I've cured to stay cured those whom regular physicians had given up to die."

Like every quack—if we are to believe their statements—Baughn "searched and searched" until he "had found in nature's laboratory the balm that heals"! And now: "I offer the cure to the world"—price $10.

"Dr." Baughn, by inference, claims to be a physician. "My knowledge of medicine," says he, "enables me to diagnose those conditions [of pellagra] accurately." As is often the case, the banks are used as an asset to quackery. In the Baughn booklet the Central Bank and Trust Company of Jasper testifies: "We are acquainted with Mr. G. P. Baughn of the American Compound Company and know him to be thoroughly reliable." It says further, "We do not hesitate to say that he, as well as all other members of said company, will carry out any contract they make." The Central Bank and Trust Company ought to know, as its president, H. W. Cranford, is apparently a co-partner in Baughn's quackery, his name being given as vice-president of the American Compounding Company. The bank's vice-president, W. C. Clark, is president of the American Compounding Company—truly a beautiful combination!

Letters sent out as late as July, 1913, give the following as officers and directors of the American Compounding Company:

> W. C. Clark, president and director.
> H. W. Cranford, vice-president and director.
> J. H. Bankhead, Jr., secretary, treasurer and director.
> A. F. Fite, director.
> G. P. Baughn, director.

The later stationery has, in addition to these names, that of Dr. A. L. Hendon, "Medical Director." According to our

records, A. L. Hendon is not a graduate of any medical college, but seems to be licensed to practice medicine in Alabama. Needless to say he is not a Fellow of the American Medical Association or a member of his local society. So far as G. P. Baughn is concerned, in spite of the fact that he terms himself "doctor," claims to be able to diagnose diseases and to have studied medicine, our records—and they are exceedingly complete—fail to show that any man of this name was ever graduated by a medical college or licensed to practice medicine. Certain it is that G. P. Baughn holds no license to practice medicine in the state of Alabama.

A ten-dollar "treatment" of Baughn's Pellagra Remedy was sent to the American Medical Association by the State Health Officer of Alabama, Dr. W. H. Sanders, who asked that the stuff might be analyzed and the public given the information. Dr. Sanders reported that the sale of the "cure" in pellagra-ridden districts was hindering the efforts of the medical profession in its campaign of sanitary enlightenment, looking to the prevention of pellagra. As in all such cases, the exploitation of worthless "cures" causes the general public to take the attitude that it is unnecessary to change one's method of living or subject one's self to minor inconveniences to prevent a disease that can be "positively cured" by Dr. Quack's Specific.

The nostrum sent in by Dr. Sanders was in powder form and in two bottles. One bottle was labeled "Prescription No. 1, For Internal Use"; the other "Prescription No. 2, For External Use." "Prescription No. 1" consisted of black powder in capsules; "Prescription No. 2" was a coarse, mustard-colored powder, loose in the bottle. The stuff was analyzed in the

Fig. 1.—Photographic reproduction of label on one of the bottles of Baughn's "cure" for pellagra.

Association's laboratory and the black powder in the capsules was found to have—in addition to small particles of straw and "dirt"—essentially the following composition:

Quinin Sulphate	2 per cent.
Charcoal	13 per cent.
Impure Iron Sulphate	85 per cent.

"Prescription No. 2" also contained particles of "dirt" and straw and was found to consist, approximately, of:

Common Salt	25 per cent.
Monsel's Salt (Basic Iron Sulphate)	75 per cent.

The chemist's report in further detail follows:

CHEMIST'S REPORT

The specimens of Baughn's Pellagra Remedy, submitted to the Association's laboratory for examination, were contained in two separate bottles. One bottle contained a number of capsules and was labeled: "For Pellagra and Nothing Else—Full 30 days' treatment—$10.00—Prescription No. 1, For Internal Use, Manufactured and Guaranteed Under Food and Drugs Act, June 30, 1906. Serial No. 48970, by American Compounding Co., Jasper Alabama," and contained capsules. The other bottle contained a yellow powder and was labeled as above, except for the modification "Prescription No. 2, For External Use."

The capsules of "Prescription No. 1" contained a black and very poorly mixed powder along with particles of straw and "dirt." The average weight of the contents was 0.50 gram (about 7½ grains) to each capsule. As nearly a uniform sample as possible was analyzed with the following results:

Qualitatively the presence of charcoal, iron, [traces of aluminum and magnesium] quinin and sulphate was demonstrated. The iron was present in both ferric and ferrous forms. The following quantitative composition was found:

Carbon	12.5 per cent.
Iron (Fe)	25.9 per cent.
Sulphate (SO_4)	43.5 per cent.
Quinin	1.7 per cent.
Water (Loss at 120 C.)	3.3 per cent.
Alumina (Al_2O_3)	0.1 per cent.
Undetermined	13.0 per cent.

From the examination it is concluded that Baughn's Pellagra Remedy, "Prescription No. 1" consists essentially of charcoal 13 per cent., quinin sulphate 2 per cent. and impure iron sulphate, chiefly basic ferric sulphate, 85 per cent. Accordingly each capsule contains quinin sulphate 1/6 gr., charcoal 1 gr and impure, iron sulphate (basic) 6½ grs.

Examination of the "Prescription No. 2, For External Use," showed the yellow powder not to be readily soluble in water but readily soluble in acidulated water. The powder was not uniform in composition and from it crystals and even lumps (later proved to be sodium chlorid) could readily be separated

SPREAD THE GLORIOUS NEWS!

PELLAGRA can be CURED

Talk about IT! Discuss IT with your neighbors! Carry the Glad Tidings to the Afflicted that they may be Healed!

Baughn's PELLAGRA Remedy

Is daily, quickly and surely healing hundreds of sufferers from Dread Pellagra. It will heal you. I GUARANTEE TO CURE IF INSTRUCTIONS ARE FOLLOWED, OR REFUND ALL THE MONEY YOU PAY ME.

Read the Testimony of Actual Results:

My Guarantee:

My References:

My Remedy:

We can furnish many other sworn testimonials like these

IF YOU ARE A SUFFERER—IF YOU KNOW ONE—ACT TODAY.

Write for Free Booklet, Sworn Testimonials and Symptom Blank.

G. P. BAUGHN, American Compounding Company, Incorporated,

Jasper, Alabama.

Fig. 2.—Quackery is profitable! Full-page newspaper advertisement of Baughn's pellagra "cure." The original was 14 inches by 20 inches in size.

mechanically as well as particles of straw and "dirt." Qualitative examination indicated the presence of iron, both in the ferrous and ferric condition, sodium, sulphate, chlorid and a small amount of a substance volatile in steam which was not identified. Quantitative determinations made on a representative sample gave:

Iron (Fe)	21.5 per cent.
Sulpnate (SO_4)	41.4 per cent.
Sodium Chlorid (NaCl) (calculated from chlorid determination)	26.6 per cent.
Undetermined	10.5 per cent.

From the physical properties of the powder and from the analytical data obtained it is concluded that Baughn's Pellagra Remedy, "Prescription No. 2, For External Use," consists approximately of sodium chlorid (common salt), one part, and basic iron sulphate three parts.

The label on Baughn's Pellagra Remedy, "Prescription No. 2," directs that three tablespoonfuls be shaken with one quart of warm water and the solution so obtained be used. To deter-

mine the composition of the solution so obtained, three tablespoonfuls (about 55 gm.) were well shaken with one quart of warm water and this allowed to stand for three days. Examination of the supernatant solution showed each 100 c.c. to contain approximately, 1.4 gm. of sodium chlorid and 2.7 gm. of basic ferric sulphate (Monsel's salt). This is equivalent to about 7 grains of common salt and about 14 grains of Monsel's salt to each fluidounce.

And this is the marvelous "cure" for which Baughn claims to have "searched and searched" and finally "found in nature's laboratory!" This is the stuff that, according to Baughn, is "the balm that heals—the antidote for the poison that weakens and deadens body and intellect alike." This, a mixture of charcoal, common salt, iron sulphate and a dash of quinin—not to mention the straw and "dirt"—is what Baughn is selling at $10 a "treatment" to the unfortunate sufferers from pellagra.

There are many disreputable ways of making money, but we know of none so mean, so heartless, so devoid of common decency as that employed by the nostrum fakers. It is they who feed, carrion-like, on the fears of suffering humanity. To those stricken with a well-nigh incurable disease, they hold out the hope of a "sure cure" in the form of worse than worthless nostrums. To this class belong Baughn and his co-partners in fraud. Baughn's remedy is utterly impotent to cure pellagra. In hampering the efforts of sanitary officers to stamp out the conditions that favor the spread of pellagra, Baughn is guilty of a social and economic crime; in frightening those who have not the disease into the belief that they are suffering from it, Baughn but follows the villainous tactics of the "patent medicine" fakers; in selling as a "cure" his worthless stuff to those who have the disease, he perpetrates a heartless fraud.

WATERBURY'S COMPOUND ONCE MORE

Most of our readers will remember what THE JOURNAL has published about a product that used to be sold as "Waterbury's Metabolized Cod-Liver Oil Compound." Briefly, it was shown by a report of the Council on Pharmacy and Chemistry and a contribution from the Assocation's laboratory, that this "Cod-Liver Oil Compound" contained practically no cod-liver oil! Later the federal government declared the stuff misbranded.

The product is now sold under the name "Waterbury's Compound." It was recently stated in this department that "Waterbury's Compound was one of the proprietary preparations advertised both in "display" form and also in the form of an "original article," in the *Army and Navy Medical Record* —a fraudulent publication that offered its editorial pages for sale. Physicians are now receiving from the Waterbury Chemical Company, a reprint of what purports to be an editorial from the *Army and Navy Medical Record* entitled, "One of America's Most Valuable Preparations." The preparation, of course, is "Waterbury's Compound." The company in sending out this reprint also reproduces on the reverse side the title-heading of the *Army and Navy Medical Record*. All of which goes to show that some concerns not only do not mind being found in bad company, but seem proud of it. By the way, we wonder whether those physicians who are still prescribing this nostrum think they are prescribing a preparation containing cod-liver oil!

Tentative Conclusions Concerning Pellagra.—After two years of research the Thompson-McFadden pellagra commission in South Carolina, sums up its findings as follows: "1. The supposition that ingestion of good or spoiled maize is the essential cause of pellagra is not supported by our study. 2. Pellagra is, in all probability, a specific infectious disease communicable by means at present unknown. 3. We have discovered no evidence incriminating Buffalo gnats in the causation of pellagra. If it is distributed by a blood-sucking insect, the stable-fly would appear to be the most probable carrier. 4. We are inclined to regard intimate association in the household and the contamination of food with the excretions of pellagrins as possible modes of distribution of the disease. 5. No specific cause of pellagra has been recognized."

Correspondence

The Central Health Institute

To the Editor:—It has been brought to my attention that in a recent number of THE JOURNAL I was mentioned as one of the incorporators of the "Central Health Institute," an institution which has carried on considerable advertising. The fact as stated is correct, but the inference easily deduced is entirely wrong, for I withdrew from the corporation within one month after it was incorporated. The "Central Health Institute" was incorporated with the intention of establishing an ethical institute of physiologic therapeutics and later a sanatorium. This institute then was located in the Methodist Book Concern Building, which does not rent to advertising concerns. Dr. Livingston, who had just graduated from the medical college, was introduced to me by the president of the college, and it was on his recommendation that I entered into the work. It took less than a month to demonstrate that Dr. Livingston's ideas and mine were entirely different, so both Dr. Lambert and I withdrew from the institution and Dr. Livingston and the "Central Health Institute" moved to a different location, while I retained the offices in the Methodist Book Concern Building. I attach a copy of documentary proof of my statements. In justice to Dr. Lambert and myself I ask you to publish this letter in THE JOURNAL, from which the misunderstanding started and to remove our names from all copies of the pamphlet [reprint] sent out in the future.

EDITH B. LOWRY, M.D., St. Charles, Ill.

[COMMENT.—We are pleased to publish this letter in justice to Dr. Lowry. The Dr. Livingston referred to, Margaret M. Livingston, was graduated in 1909 by Bennett Medical College, Chicago, whose president at that time, as now, was Dr. John Dill Robertson.—ED.]

No Optical Goods Concession at the Panama-Pacific International Exposition

To the Editor:—In THE JOURNAL for Oct. 11, 1913, p. 1382, there is an editorial headed "Spectacles and the Panama Exposition," in which you comment rather bitterly on the proposed sale of an optical goods concession at the Panama-Pacific International Exposition. You base your comments on the assumption that any concession for the sale of optical goods must necessarily be on the same plane as one for the sale of peanuts. This assumption is utterly unfounded. It is, moreover, an injustice aggravated by the fact that the exposition directorate took special care to guard against the very dangers which you assume must necessarily arise.

It may not be known to you that the laws governing the practice of optometry in California are exceptionally rigid. No man in California is allowed to sell spectacles or eyeglasses unless he is duly qualified and certified. A spectacle-selling concession in the exposition grounds would be, and must be, conducted on precisely the same professional plane as it would be if on Market Street, San Francisco, or State Street, Chicago. In fact it would, if anything, be on a higher plane, for in addition to the statutory protection of the state of California the exposition directorate had surrounded this particular concession with several other safeguards. These were so rigid that one prominent member of the American Optical Association complained that no optometrist could possibly make any money under such restrictions. He endeavored to have the regulations modified in order that he, himself, might become a bidder for the concession, but was refused. Please consider this in answer to the accusation that the exposition regarded only the commercial side of the matter.

The citizens of California intend to build and to conduct an exposition utterly free from any taint of graft, favoritism, extortion or uncleanliness. The safety, comfort and fair treatment of visitors stand first in all plans. This is to be the greatest exposition in history and one of which California and the nation must be proud. We take this responsibility very seriously and if you knew how hard we are trying to reach

high ideals in plan and execution you would, I am sure, give us congratulations and support. But all this is beside the mark, for the optical goods concession has been withdrawn from sale and no spectacles or eye-glasses will be sold at the exposition. So the matter is pleasantly settled. But I cannot refrain from giving you the facts as they were, because your accusation of selfishness and greed *hurts*.

GEORGE HOUGHBERRY, San Francisco,
Director, Division of Exploitation.

[COMMENT.—We are delighted to publish the preceding and congratulate the officials of the Panama-Pacific International Exposition on their action in this matter.—ED.]

Should Friends of Patients be Admitted to the Operating-Room?

To the Editor:—A rather sad but unique accident occurred in my service at Harper Hospital, Detroit, October 30, which answers this question most convincingly in the negative. A friend of a patient insisted on being admitted to the operating-room. He was told that the privilege was not allowed by the rules of the hospital, but could not understand why it should be denied him. He maintained that as long as his own daughter was the nurse in charge of the case, and that the patient to be operated on was a dear friend, he surely would be able to withstand the strain of the operation without any evil effect, and after some discussion he was finally admitted. During the course of the operation this friend of the patient fainted and fell, striking his head on the mosaic floor. He bled from the nose and ears, and roentgenoscopy revealed a T fracture of the base of the skull. His condition is still critical.

Another even more disastrous accident occurred at the Kalamazoo Hospital not very long ago. In this case the patient's relative felt a feeling of faintness coming over him, and in order to rid himself of the disagreeable sensations walked over to an open window for more fresh air. He sat on the window-sill and while sitting there fainted away completely. He fell out of the window and in falling sustained a fracture of a cervical vertebra which proved fatal.

I cite these two cases just to show what evil results may follow the unnecessary practice of admitting friends of patients to the operating-room.

ANGUS MCLEAN, M.D., Detroit.

Method of Sterilizing Rubber Gloves

To the Editor:—For three years I have been using the method of glove sterilization criticized by Dr. McDonald (THE JOURNAL, Nov. 8, 1913, p. 1735). Undoubtedly gloves covered with "blood, pus, serum or soap" would be impervious to the action of cyanid or alcohol; but in soap and hot water we have a very active agent for the removal of these "organic substances" from the smooth surface of the rubber glove, and most certainly the gloves are to be washed and rinsed, as stated in my article. Alcohol is conceded by most, if not all, authorities to be a most effective germicidal agent. Many of our most famous surgeons use no other method of hand sterilization than scrubbing with soap and water followed by alcohol.

The gloves made clean by soap and water and sterilized by alcohol are protected from subsequent infection by the talc-cyanid powder. It was not my intention to recommend these gloves for all purposes, but for obstetric work; and surely, when infection is known to exist prior to the use of the gloves they would be boiled subsequently before being treated with the cyanid solution. Theoretically they may not be sterile, but practically they surely seem to be. Theoretically gloves must be boiled for thirty minutes under a pressure of 15 pounds to be sterile, but practically how many men do boil their gloves under pressure, and for thirty minutes? My method is not ideal, but it is much more safe than the ungloved hand hurriedly washed, dipped into compound solution of cresol and used, which is by no means a rare occurrence among general practitioners in obstetric work.

RAY ERNEST SMITH, M.D., Rutland, Vt.

The Unscientific Prescribing of Complex Pharmacopeial Mixtures

To the Editor:—Dr. Osborne's criticism and condemnation of certain pharmacopeial mixtures (THE JOURNAL, Oct. 4, 1913, p. 1289) will undoubtedly be appreciated by the thoughtful and careful physician. If it is unscientific to prescribe ready-made patented or proprietary remedies when their exact composition is unknown to us, why is it not equally unscientific to use complex official preparations, some of the ingredients of which we generally do not remember? The fact that we usually know the therapeutic use of the preparation as a whole and its dose is not enough to justify our prescribing it. Every dose of medicine which the doctor gives his patient to swallow should have all its ingredients carefully considered and passed on by the prescriber. This can hardly be done with complex ready-made preparations, as the doctor seldom remembers their exact composition.

Just the other day, while in a drug-store in my neighborhood, I saw a prescription from a regular physician in good standing calling for paregoric, brown mixture, glycerin and water. The druggist told me that he called up the doctor on the telephone and informed him that brown mixture (mistura glycyrrhizæ composita) contains paregoric (camphorated tincture of opium) as one of its ingredients, and that glycerin enters into the composition of paregoric. The doctor thanked him and authorized him to leave out the paregoric and glycerin and dispense only the brown mixture and water.

Such errors we make daily just because it is impossible for the average practitioner to remember the composition of these mixtures.

Dr. Osborne's criticism well deserves the closest attention of every doctor. L. BUCKLE, PH.G., M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OPEN-AIR TREATMENT AND THE FLUELESS HEATER

To the Editor:—I may be, as you state in your reply to my note on "The Open-Air Treatment" and "The Flueless Gas-Heater" editorials (THE JOURNAL, Nov. 1, 1913, p. 1649), "evidently unfamiliar with the literature" when I say that the experiments are too few to permit "definite conclusions to be safely drawn on a subject which concerns the health of millions of people"; but I am not the only occupant of that conspicuous position.

When you wrote in the editorial on "The Open-Air Treatment" (THE JOURNAL, Oct. 11, 1913, p. 1378) the words "is wholly in accord with recent experimentation," you evidently were unfamiliar with the literature on the subject. Permit me to add to the list of authorities you so kindly furnished that of Yandell Henderson (*Tr. Fifteenth Internat. Cong. Hygiene and Demography*, vii, 622). And now that your attention has been directed to Henderson, it will be in order for you to dispose of him, or rewrite the phrase "wholly in accord" to correspond to the facts; for "wholly" means "entirely," and Henderson produces facts that are not "wholly in accord."

That I had good grounds for the statement that the experiments are altogether too few to permit definite conclusions to be drawn on a subject which concerns the health of millions of people, and that the subject of ventilation is still open, and that more facts should be observed and presented for consideration before we can draw definite conclusions, allow me to quote from Henderson: "We have really" he writes, "at the present time no adequate scientific explanation for the health-stimulating properties of fresh air and the health-destroying influence of bad ventilation." He summarizes the literature of the subject, including the heat-block conclusion, and asks, "Is this explanation satisfactory?" and adds, "I must confess for me it is not. From the standpoint of hygiene, it is practically proved. From the standpoint of physiology, however, the proof offered by Hill and Flügge merely opens up a new question." In conclusion he says, "The subject needs investigating along new lines rather than a rehearsal of old data." Thus, according to Henderson the conclusions of Flügge furnish no adequate scientific explanation, and I had good grounds for the statement that the subject of ventilation is still open and that more facts should be observed and presented before we can draw definite conclusions.

This is also in accord with Winslow (N. A. S. Report, 1911, p. 784) when he states that "extended studies of actual conditions in relation to their effect on physical and mental efficiency can alone furnish a sound basis for such standards as we should like to possess."

The conclusions based on the experiments of Hill and Flügge have furnished a good working hypothesis and have been of value in satisfying the hygienists, but it is very probable that in a few years it will resemble one column, and not a complete edifice, or else perhaps a bird's nest from which the birds have flown.

JOHN B. TODD, M.D., Syracuse, N. Y.

ANSWER.—In reply we may say:

1. At the time the editorial in question was written the *Transactions of the Fifteenth International Congress on Hygiene and Demography* had not been published. There was therefore a reason for being "unfamiliar" with the article in question.

2. Professor Henderson's interesting paper to which our correspondent refers does not contain new experimental data, but is simply a discussion of the physiologic side of ventilation.

3. We would especially call our correspondent's attention to the fact that the article he quotes does not advocate the view that the effects of bad ventilation are due to chemical impurities in the air or to lack of oxygen. On the contrary, starting with the thesis, which "is wholly in accord with recent experimentation," that high temperature, moisture content and air-stagnation are the factors whose influence in ventilation have thus far been demonstrated, Henderson discusses the precise nature of the physiologic reactions to these conditions on the part of the organism. Briefly, his conclusion is that instead of skin conditions being responsible for all the results of bad ventilation, oxygen secretion on the part of the lungs must be taken into consideration. This is somewhat different from Hill's explanation of the physiologic response to conditions of good and bad ventilation, but it in no way touches either the point raised in our editorial of October 11 or our answer to our correspondent November 1. Henderson evidently considers that the effect of cold on the skin "is to stimulate the pulmonary epithelium to secretory activity." He continues: "Taking all of these facts into account, it is logical to conclude that the lungs are normally the seat of a more or less active process of oxygen secretion, and that the effects of warm, moist air on the skin are to inhibit this process in the lungs." Note that "cold" and "warm, moist air" are the factors mentioned.

4. Even if we were to assume that we know all about the factors concerned in ventilation—an assumption by no means justified—we should still have the problem of the way in which these factors act on the human body. This is the real theme of Henderson's article; it is quite true, as he states, that "the proof offered by Hill and Flügge merely opens up a new problem." In scientific investigation a problem "solved" always reveals others in need of solution. The point we attempted to emphasize in our editorial was that there is no evidence that the effect of bad ventilation is due to chemical impurities, but that the observed effects can be largely if not wholly explained by high temperature, high humidity and air-stagnation and that the action of these factors on the human organism may in turn be accounted for on rational physiologic grounds. Our correspondent seems to have misunderstood completely the tenor both of the criticized editorial and of Henderson's article. We recommend a careful rereading of both.

LITERATURE ON PSYCHOLOGY AND PSYCHOTHERAPY

To the Editor:—Please refer me to recent works on philosophic and scientific explorations, investigations and speculations of the occult sciences, the subconscious mind, psychotherapy, dreams, etc.

E. F. WIEDERANDERS, M.D., Estancia, N. Mex.

ANSWER.—Following are some useful works in this broad field:

Tuckey: Psychotherapeutics, G. P. Putnam's Sons, 29 West Twenty-Third Street, New York. $3.

Forel: Hypnotism, or Suggestion and Psychotherapy, translated by H. W. Armit, Rebman Company, 1123 Broadway, New York.

Sidis: Psychology of Suggestion, a Research into the Subconscious Nature of Man and Society, D. Appleton & Co., 436 Fifth Avenue New York.

Schofield: Force and Mind, or the Mental Factor in Medicine, Blakiston's, $2.

Schofield: The Unconscious Mind, Funk and Wagnalls, $2.

Schofield: Unconscious Therapeutics, Blakiston's, $1.50.

Monro: Handbook of Suggestive Therapeutics, Applied Hypnotism and Psychic Science, Mosby Medical Book Company, 2313 Washington Avenue, St. Louis, $3.

Alexander, H. B.: Subconscious in the Light: Dream Imagery and Imaginative Expression (in *Proc. Am. Soc. for Psychical Research*, iii, part 2), American Society for Psychical Research, $1.00.

Mental Healing. Queries and Minor Notes, THE JOURNAL, July 29, 1911, p. 408.

Freud, Sigmund: Dreams, New York, Macmillan, $4.

Jastrow, Joseph: The Subconscious Mind, Boston, Houghton, Mifflin & Co.

Dejerine, J., and Gauckler, E.: Psychoneuroses and Their Treatment by Psychotherapy, translated by S. E. Jelliffe, Philadelphia, Lippincott, 1913, $4.

B. C. A.: My Life as a Dissociated Personality, Boston, R. G. Badger, $1.

Munsterberg, H.; Ribot, T.; Jastrow, J.; Janet, P.; Hart, B., and Prince, M.: Subconscious Phenomena, Boston, R. G. Badger, $1.20.

Prince, Morton: Psychotherapeutics, Boston, R. G. Badger, $1.50.

Miller, H. Crichton: Hypnotism and Disease, Boston, R. G. Badger, $1.50.

REGULIN

To the Editor:—Will you kindly let me know what Regulin is? Enclosed is literature telling what it is, but there is so much left unsaid that I will be grateful for more information.

F. M. R., Monticello, Iowa.

ANSWER.—Regulin is agar-agar (N. N. R., 1913, p. 20) to which some cascara preparation has been added. The product at one time was described in the Appendix to New and Non-official Remedies as follows:

A mixture of agar-agar in a dry form with extract of cascara sagrada representing 15 per cent. of an aqueous fluidextract of cascara sagrada.

RIMINI-BURNAM TEST FOR FORMALDEHYD IN URINE

To the Editor:—Please describe the Rimini-Burnam test for formaldehyd in the urine. J. W. SHUMAN, M.D., Sioux City, Iowa.

ANSWER.—The test referred to is a modification of the Rimini test by Mr. H. A. B. Dunning, and is thus described by him in the *American Journal of Pharmacy*, October, 1913:

About 2 c.c. of urine specimen, contained in a five-inch test tube, is warmed and two drops of 0.5 per cent. solution of phenylhydrazin hydrochlorid is added, followed by 2 drops of 0.5 per cent. solution of sodium nitroprussid, the mixture being made strongly alkaline with saturated solution of sodium hydroxid. In strengths of from 1:20,000 to 1:50,000 a deep-blue coloration results, changing in a few minutes to green, then yellow, or perhaps, red. In more dilute solutions the blue lasts momentarily only, and is quickly superseded by green. The blue may be made to last longer and become more distinct by adjustment of the quantities of sodium nitroprussid and phenylhydrazin hydrochlorid added, the weaker strengths requiring less nitroprussid and phenylhydrazin. In alkaline solutions phenylhydrazin gives a yellow color; therefore, if there is but a trace of formaldehyd, the depth of blue color is masked and converted into green by mixtures of colors blue and yellow.

The following method may be used to determine the quantity:

To 5 c.c. of specimen contained in a 5-inch test-tube, add 0.1 c.c. of 15 per cent. solution of sodium hydroxid and mix well. Then add 0.1 c.c. phenylhydrazin, base, not hydrochlorid; finally add 0.7 gm. of stick sodium hydroxid and agitate for ten minutes. The strength is estimated colorimetrically by comparing with the standard solutions treated in same manner as specimen, and at the same time. It is important to remember that the several reagents must be added to specimen and standard solutions at the same time; that is, specimen and standard are treated simultaneously. Standard solutions of formaldehyd may be prepared by accurately diluting an assayed specimen to the strength of 1:50,000, 1:100,000, 1:200,000, etc.

PETROLEUM POISONING—CARBON MONOXID POISONING

To the Editor:—1. Please give symptoms and treatment of poisoning by inhaling the fumes of gasoline.

2. Give symptoms and treatment of carbon monoxid poisoning.

E. S. CASTER, M.D., Solomons, Md.

ANSWER.—1. The general symptoms of petroleum (gasoline) poisoning consist in headache, dizziness, accelerated heart-action, labored respiration, collapse, stupor, unconsciousness and, more rarely, convulsions; sometimes there is a rise of temperature. Drowsiness is a prominent symptom. Unconsciousness has come on in from ten to fifteen minutes after the swallowing of less than half an ounce of benzin. In cases of collapse, warm baths with cold affusions are recommended; the usual respiratory and cardiac stimulants are also indicated.

2. A description of the symptoms and treatment of monoxid poisoning would occupy more space than can be given to it. We refer the reader to an article on illuminating-gas poisoning in the Handbook of Therapy, page 408. This article also appeared in THE JOURNAL, Feb. 6, 1909, p. 473.

Medical Economics

INCOME TAX APPLIED TO PHYSICIANS

The amount of discussion in the newspapers and elsewhere has made those interested familiar with the general provisions of the income tax. Its application to physicians, however, involves some difficult problems, the working out of which will have no small effect on the economic side of the practice of medicine. The general provisions of the law are well understood.

The first and most important question which will be raised by the application of this law to physicians is, What is a physician's income? In the case of physicians or surgeons employed on a salary by life-insurance companies, railways and other industrial organizations, the question is as easily determined as in that of any other class of salaried employees. The great bulk of physicians, however, have an income made up of fees received from patients for services rendered, the sums being large in number and relatively small in amount.

It has been customary for a physician to regard his gross receipts for the year as his income. The inaccuracy of such a supposition, and the injustice of taxing a physician on his gross receipts, is self-evident. Out of the entire amount of money received during the year, the physician or surgeon has to pay the expenses of his business. His gross receipts no more constitute his income than the gross receipts of a dry-goods store constitute the income of the proprietor. Out of his gross receipts a physician has to pay for his office, telephone, office girl, stenographer, instruments, books, professional journals, drugs, dressings, and all the material needed for his work, as well as for the maintenance of horses, carriages, automobiles or other means of conveyance. Clearly, a physician's income is the difference between his gross receipts and the cost of operating his business, or the amount that he has left for himself and his family after paying all his necessary professional expenses.

In the case of surgeons in large cities or specialists doing an exclusive office practice, it will be comparatively easy to separate the necessary business expenses from personal expenses. It will be necessary only to keep a separate account of all expenses connected with one's office, and to deduct this amount from the gross receipts. It is doubtful, however, whether even these elementary bookkeeping methods are being followed by the majority of physicians under such conditions. A careful inquiry would probably reveal the fact that many of our most successful specialists and surgeons would be unable to tell, offhand, how much it costs them to carry on the business side of their work during the year. Such a separation of business and personal expenses will become necessary under the law in order to determine the real income of such physicians.

The law provides for the deduction of "necessary expenses for carrying on any business." Obviously the difficulty will lie in determining what these necessary expenses are. When the case of the average general practitioner in the small city, town or country district is considered, however, the difficulties multiply. In many cases the only form of bookkeeping followed by physicians has been a personal running account with each patient or family. Services have been charged against the patient and payments have been credited. No attempt has been made to balance the books annually, to charge off bad accounts, to estimate the value of standing accounts, or to arrive at any definite figures as to the cost of doing business. Outside of the larger cities the majority of physicians have their offices in their homes. No attempt is made to separate office rent or office expenses from general living expenses. Heat, light, telephone and other necessities for professional work are also utilized for personal and family purposes. Drugs, dressings and other supplies are often purchased at the local drug-store, where a running account is carried, and where many articles for family use are purchased at the same time. Medical books are purchased and journals subscribed for, without any thought of the cost being a professional, and not a personal expense. Membership in medical societies is not recognized as anything but a personal relation, although in many cases it carries with it subscriptions to medical journals and is maintained for purely professional reasons. Horses, carriages or automobiles are used indiscriminately by the doctor for professional purposes and by himself or his family for social purposes and recreation. It is probably safe to say that the plan followed by the majority of physicians in the United States is to collect as large a percentage of their bills as possible, pay out of their available funds their professional and personal expenses and the expenses of their families without any effort at discrimination, and to regard any surplus which may remain as profit for investment or increased expenditures.

In the case of unmarried physicians whose gross receipts for the year amount to less than $3,000, or married physicians whose gross receipts are less than $4,000 there will, of course, be no difficulty. They will clearly come under the exemption clause. The limited number of physicians practicing surgery or any exclusive office specialty in large cities, who have systematized their work on a business basis, will also offer no difficulty. They can readily show the amount of their operating expenses and the balance remaining which will be subject to the income tax. The difficulty will arise in the case of the large number of physicians who have hitherto paid no attention to the details of expenses, and who will be incapable, without a marked change in their business methods, of separating their business and professional from their personal expenses. When this is attempted, some interesting questions will arise. For instance, should the entire cost of operating an automobile be regarded as a professional expense? It is probably true that the majority of physicians would not run an automobile were one not absolutely indispensable for present-day professional work. On the other hand, the machine is used, not only for work, but also for recreation by the physician and members of his family. How would it be possible to apportion the amount of time during the year spent in using an automobile for business and that spent in using it for pleasure?

In the same way difficulty will arise regarding office help and assistance. A physician having his office in his home has attendants who are partly professional and partly personal. A maid, for instance, who acts as attendant in the waiting-room during the doctor's office hours may be employed with domestic duties at other times. The telephone is certainly a professional necessity, and yet it is constantly used for personal and social purposes. The physician is different from any other professional man in that, in the majority of cases, his home is his place of business. The teacher has all of his equipment furnished him. The lawyer, even in small towns, hardly ever has his office in his house. The minister has little, if any, professional expenses. The business man has his place of business entirely separate, and the bookkeeping system which has been forced on him makes it easy for him to separate his business expenses from those of his home. But the physician has, for generations, carried on his work in his home. His professional and personal expenses have never before been separated.

In addition to determining what their incomes are, physicians will learn for the first time, owing to the necessity of more carefully kept accounts, what are the rewards of the practice of medicine. The ratio between expenses and profits in the practice of medicine will be learned. If it should be shown, for instance, that even in the case of a physician collecting a gross income of $10,000 a year, the net proceeds to the physician after all his expenses were paid was only $5,000, it would be evident that $5,000 and not $10,000 was his income and that in order to have $1 to spend he would have to earn $2. If it should appear that the physician collecting $4,000 a year in the small town had more money to show for his work at the end of the year than the physician in the large city collecting twice that amount, but paying out more than twice as much in expenses, then as a business proposition the advantages of country over city practice would be demonstrated. Many equally interesting and important deductions can be thought of.

The most important result of the application of this law to the medical profession, however, will be the necessity on the part of physicians of more accurate methods of bookkeeping, and more carefully kept accounts. It has often been observed that one of the most effective ways to make a man economical and thrifty is to require him to keep an accurate account of all the money which he pays out and the purposes for which it is paid. The majority of physicians to-day probably have no idea of the amount of their gross annual expenses, probably many do not even know their gross annual receipts. If compelled to keep an accurate record of all receipts and expenditures, and to draw up a balance sheet each year, the result would inevitably be greater economy in their business methods, more careful attention to business details, and, in the end, probably greater thrift and larger bank accounts. In the meantime, however, through the enforcement of the Underwood law, physicians may obtain some exceedingly interesting information regarding the economics of the medical profession, and their own financial standing.

MEDICAL INSURANCE IN GERMANY

An industrial insurance act, in the form of an amendment to the original act, but in reality practically a new law, will go into force in Germany on Jan. 1, 1914. While industrial insurance in Germany is of earlier origin than in England, apparently the government has not profited by the experience of Lloyd George in attempting to enforce the British insurance act, and has formulated the new German law without any reference to or consultation with the physicians who are to administer it. The new law leaves the classification of insurance the same as the old, namely, accidents, sickness, and invalid and old-age pensions, but adds a fourth classification in the form of provisions for widows and children of insured persons. The original act was designated as the Workmen's Insurance Act. This title is no longer applicable, as the new law greatly increases the beneficiaries, and takes in persons in the middle walks of life besides workmen. Under the old law the limit was $500 a year. All persons earning less than this amount were required to insure themselves under the provision of the act. The limit is now $600. Hereafter all workmen, domestic servants and all who contract to work for employers, whether occupied in shops or factories or their own homes, are compelled to take insurance under the law, even if their income exceeds $600, provided it does not exceed $1,250 per annum. In addition, all technical workers, schoolteachers, tutors, foremen, shop workers, and others whose income does not exceed $600 a year are required to insure themselves, while voluntary subscribers among independent workers and small landowners are permitted, in case their income does not exceed $750 a year. This extension brings under the provisions of the act not only the laboring classes, but also a very large proportion of the official and middle classes. It is estimated that the thirteen million persons insured under the old law will be increased to over twenty-two million, without including the voluntary beneficiaries.

So comprehensive is the new law that it is estimated that in some districts from 92 to 95 per cent. of the entire population will be insured. The effect of this on the private practice of medicine will, of course, be most marked. According to the *British Medical Journal*, the official bodies entrusted with the enforcement of the act in Germany correspond closely to the friendly societies and sick clubs in England. As these organizations are to be charged with the administration of the new law, the government has laid down conditions for their reorganization, and has provided that the members be divided into two groups, the city insurance societies and the rural insurance societies. In the first are included skilled workmen, tradesmen, officials coming under the operation of the law, and others. In the second class are included farm laborers, home workers and domestic servants. The small organizations under which the act has been administered heretofore will be replaced by a single organization, divided into two classes, as indicated above, with a total membership of between 400,000 and 500,000. This body will administer the insurance act for the twenty-two million of persons affected.

The same questions have evidently arisen in Germany as in England. The right of the insured to choose physicians has been one of the questions most heatedly discussed. Heretofore, the small local societies have had the right to adopt either one of two systems. Under one, any local physician was entitled to have his name enrolled as a physician on the society's books, and any member had the right to choose any physician so registered. Under the other system, the local society could appoint a certain number of physicians, and members were limited in their choice to those so chosen. German physicians have generally favored the free choice of physicians by patients, while the societies have favored the limited list. Under the new law both systems are retained; but it is probable that the new method of organization of the workingmen's societies will result in the establishment of controlling boards, composed of equal numbers of society members and physicians, in whom the right to appoint physicians will be lodged. The annual per capita fee of $1.20 per patient per year will probably not be increased.

The enactment of this new law in Germany and its application to a greatly increased and nearly doubled number of persons, and the enactment of the national insurance law in England, are significant indications of the direction in which the practice of medicine is developing. It is of the utmost importance that American physicians know the facts regarding these efforts in other countries to secure under governmental supervision insurance against illness, accident and old age. How soon this matter will be a live issue in this country, it is difficult to say. That it will sooner or later be an important question in some form or other admits of little doubt.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: State Society and Homeopathic, Dover and Wilmington, Dec. 9-11. Secretary of the Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: Armory, Louisville, Dec. 11-13. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: Regular, 1211 Cathedral St., Baltimore, Dec. 9. Sec., Dr. J. McP. Scott, Hagerstown.

OHIO: Columbus, Dec. 9-11. Sec., Dr. Geo. H. Matson, State House.

PENNSYLVANIA: Philadelphia, Dec. 2-4. Sec., Mr. Nathan C. Schaeffer, Harrisburg.

VIRGINIA: Richmond, Dec. 16-19. Sec., Dr. Herbert Old, Norfolk.

Michigan Reciprocity Report

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports that from July 21 to October 16, 1913, 10 candidates were licensed through reciprocity. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1906)	Maryland
College of Physicians and Surgeons, Chicago	(1910)	Illinois
Northwestern University	(1911)	Illinois
Indiana University	(1911)	Indiana
College of Physicians and Surgeons, Baltimore	(1911)	W. Virginia
University and Bellevue Hospital Medical College	(1911)	New York
Cleveland-Pulte Medical College	(1912)	Ohio
Western Reserve University	(1911)	Ohio
University of Pittsburgh	(1908)	Penna.
Marquette University	(1909)	Wisconsin

Montana October Report

Dr. William C. Riddell, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, Oct. 7-9, 1913. The number of subjects examined was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 30, of whom 21 passed and 9 failed. The following colleges were represented:

PASSED			
College	Year Grad.		Per Cent.
Bennett Medical College	(1912)	78.6,	82.9
Hahnemann Med. Coll. and Hospital of Chicago	(1902)		80
Northwestern University Medical School	(1884)		77.5
Rush Medical College	(1913)		82.6
State University of Iowa College of Medicine	(1907)		79.5
College of Physicians and Surgeons, Baltimore	(1911)		78.2
Johns Hopkins Medical School	(1908)		83.7
Detroit College of Medicine	(1904)		78.8
University of Michigan, Department of Medicine and Surgery	(1906)		84.7
St. Louis Univ., School of Medicine (1908) 80.8;	(1912)		83.2
John A. Creighton Medical College	(1912)	78.3,	84.2
Dartmouth Medical School	(1911)		79
Albany Medical College	(1906)		76.7
Starling Medical College	(1898)		78.5
Jefferson Medical College (1907) 81.4;	(1912)		77.6
Marquette University (1911) 77.8;	(1913)		77.8

FAILED		
College	Year Grad.	Per Cent.
George Washington University	(1907)	69.2
College of Physicians and Surgeons, Chicago	(1910)	69.7
Kansas Medical College (1907) 69.6;	(1911)	71.9
University of Louisville, Medical Department	(1908)	59.2
Eclectic Medical University, Kansas City	(1908)	67.7
Marion-Sims-Beaumont Medical College	(1903)	62.2
John A. Creighton Medical College	(1909)	71.4
Marquette University	(1910)	67.1

Pennsylvania June Report

Dr. N. C. Schaeffer, secretary of the Bureau of Medical Education and Licensure of Pennsylvania, reports the written examination held at Philadelphia, Pittsburgh and Harrisburg, June 23-25, 1913. The number of subjects examined in was 6; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 281, of whom 232 passed and 49 failed. The following colleges were represented:

PASSED				
College	Year Grad.			Total No. Examined
Georgetown University	(1912)			2
Chicago College of Medicine and Surgery	(1913)			1
University of Louisville (1889)	(1912)			2
Johns Hopkins University	(1913)			3
College of Phys. and Surgs., Baltimore	(1912)	(1913.2)		3
University of Maryland	(1913)			3
Maryland Medical College (1911)	(1912,3)			4
Baltimore Medical College (1912)	(1913,3)			4
Boston University	(1911)			1
College of Phys. and Surgs., St. Louis	(1899)			1
University and Bellevue Hosp. Med. Coll.	(1907)			1
University of Buffalo	(1912)			1
Columbia University, Coll. of P. and S., N. Y.	(1912)			1
Eclectic Medical College, Cincinnati	(1913)			2
Cleveland College of Physicians and Surgeons	(1906)			1
Univ. of Pennsylvania (1911,2)	(1912,8)	(1913,43)		53
Jefferson Med. Coll. (1909) (1911)	(1912,2)	(1913,33)		37
University of Pittsburgh (1912,8)	(1913,36)			44
Medico-Chirurg. Coll. of Philadelphia	(1912,7)	(1913,16)		23
Temple University (1912,6)	(1913,8)			14
Hahnemann Medical College and Hospital, Philadelphia (1908)	(1912,4)	(1913,13)		18
Woman's Med. Coll. of Penna. (1895)	(1912,2)	(1913,9)		12
Beirut Syria College (1908)				1

FAILED		
College	Year Grad.	Per Cent.
Georgetown University	(1911)	58.7
Howard University	(1913)	68.2
Chicago College of Medicine and Surgery	(1911) 63.7; (1913) 65.7, 68.8.	
University of Louisville	(1913) 55.1, 71.4	
Baltimore University	(1900)	67.6
Maryland Medical College (1912) 47.8, 49.9, 50.8, 52.6, 59.6, 64.4, 72.3; (1913) 69.4.		
University of Maryland	(1913)	73.1
College of Physicians and Surgeons, Baltimore	(1913)	69.6
Harvard Medical School	(1913)	70.7
Barnes Medical College, St. Louis	(1899)	64.3
Leonard Medical School	(1911)	52.7
Cleveland-Pulte Medical College	(1913)	63.4
Medico-Chirurgical College of Philadelphia (1909) 70.2 (1912) 72.3, 72.9, (1913) 71.6.		
Jefferson Medical College (1912) 61.9, 67; (1913) 67.6, 68.8, 70.3, 71.8, 72.3.		
University of Pittsburgh (1912) 66.2; (1913) 69.5, 70.2, 71.3.		
Temple University (1912) 65.9, 68.2, 71.8.		
University of Pennsylvania (1911) 70.6;	(1912)	70.9
Hahnemann Med. Coll. and Hospital, Philadelphia	(1912)	72.5
Woman's Medical College of Pennsylvania	(1913)	72.7
University of Toronto	(1908)	66.7
Queen's University	(1908)	68.2
University of Naples	(1908) 36.4,	63.6
University of Athens, Greece	(1906)	52.1

PHYSIOLOGY, PATHOLOGY, BACTERIOLOGY

1. Discuss the evils which may follow the presence of adenoids in the posterior nares. 2. Given a case of pernicious anemia, describe the microscopic blood-picture contrasting this picture with that of normal blood, and state the effect of this disease on the normal functions of the blood. 3. Name three most usual causes of death of bone; describe the processes of death of bone and the sequelae of such condition. 4. Given a case of diphtheria, describe the local lesion, give the laboratory methods of verifying your diagnosis, and when as a sequela the heart becomes affected, show how the normal functions of this organ are interfered with. 5. Discuss hyaline, granular and fatty casts; (a) as to the local conditions usually present with each variety; (b) as to the impairment of the normal functions of the kidney in each condition. 6. Given an acute case of peritonitis, (a) state how the toxins are absorbed; (b) why the Fowler (sitting) position and enteroclysis are rational procedures. 7. In case of chronic alcoholism state the pathological changes which may take place in the liver and show how these changes interfere with the normal functions of the liver. Contrast pathological changes of advanced syphilis of liver. 8. In carcinoma of the cervix name the most common variety; describe the gross and microscopic appearance and describe the methods and avenues of extension. 9. Describe the lesions, outline the laboratory technic of demonstrating the causes of purulent perforative otitis and show the possible sources of infection and dissemination. 10. In a case of acute anterior poliomyelitis (infantile paralysis) describe the local lesion and show how the normal functions of the cord are disturbed.

PHYSIOLOGICAL CHEMISTRY

1. Describe the chemical composition of blood, giving approximately the percentage amount of the various component parts. 2. What is indican? Where is it formed? By what process is it formed? Give a test for its presence in urine. 3. Name the principal waste products of the human body. By what excretory organ is each eliminated? 4. How would you determine chemically whether or not any given stain was due to human blood? 5. Where and in what form do the following chemical elements occur in the human body; 1. Iron; 2. Iodin; 3. Phosphorus; 4. Sulphur; 5. Fluorin.

DIAGNOSIS, SYMPTOMATOLOGY, MEDICAL JURISPRUDENCE AND TOXICOLOGY

1. Enumerate the symptoms and physical signs in the early stage of acute peritonitis. 2. In syphilis, differentiate. (a) Chancre from epithelioma, (b) Secondary skin lesions from the exanthamata, (c) Tertiary skin lesions from other chronic skin diseases. 3. Enumerate the symptoms of catarrhal jaundice (duodeno-cholangitis); name two other diseases of this region that may resemble it, and differentiate them from catarrhal jaundice. 4. State the name and describe the distinctive symptoms of epilepsy resulting from traumatism; how may this form be differentiated from the non-traumatic forms of epilepsy. 5. Enumerate the cardiovascular and the cerebral symptoms of arteriosclerosis and conditions that may follow. 6. Enumerate the symptoms of tetanus; (a) give the etiology, (b) method of invasion, (c) name a toxic condition with which it may be confused and differentiate them. 7. Enumerate the symptoms and describe in detail the physical signs of chronic interstitial pneumonia (fibroid pneumonia) and differentiate it from pulmonary tuberculosis. 8. Enumerate the symptoms of tartar emetic poisoning; (a) name a disease it may resemble and differentiate it, (b) name three (3) antidotes. 9. Enumerate the symptoms of opium poisoning; (a) what are the most favorable conditions for its absorption, (b) differentiate it from apoplexy and uremia. 10. (a) Describe in detail the appearance of an infant born alive at full term; (b) the appearance of an infant dead born at term; (c) the appearance of an infant having died some time before birth (d) and a method by which it is conclusive that the infant had breathed.

OBSTETRICS, GYNECOLOGY, HYGIENE AND PREVENTIVE MEDICINE

1. Given a pregnant woman (the first three months) how would you determine whether she might be suffering from abortion or from extra-uterine pregnancy; in case of abortion how would you treat the case (omit description of operations). 2. If a woman in labor should suddenly develop the symptoms of collapse or shock, name three principal causes in the uterus which may be responsible for her condition. How would you manage the case (omit description of operations)? 3. Given a woman with a posterior displaced non gravid womb, how would you distinguish it from (a) fecal matter in the rectum, (b) a small pelvic tumor? What is the most usual cause of such displacements? How would you prevent it? 4. Name three principal toxemias of pregnancy together with their symptoms. Give the treatment of any one selected. 5. If a woman consults you as to her future labor and places herself under your care, up to the time she falls into labor detail the steps you must take in order to secure her safety. (State in full tests that should be made). 6. When is the induction of premature labor justifiable. Detail its status as related to other procedures in cases of contracted pelvis. 7. Enumerate four abdominal enlargements which may be mistaken for advanced pregnancy (seven months or more) and differentiate them from such possible pregnancy. 8. Name the diseases and methods of transmission caused by (a) house fly, (b) rat, (c) mosquito, (d) bedbug, (e) tsetse fly, (f) wood tick. 9. If an analysis of water revealed the presence of nitrites or nitrates, or both, why would this indicate its unfitness for drinking purposes. How could it be rendered safe? 10. State articles of food that are advisable in the following diseases: (a) diabetes, (b) tuberculosis, (c) anemia, with reasons for the recommendations.

PRACTICE, THERAPEUTICS, MATERIA MEDICA

1. Outline the management of a case of diphtheria in a child six years old; state the important conditions to be met, with definite methods of meeting those conditions, and give reasons for the use of each remedy selected. 2. Outline the general management of a case of pneumonia in an adult; state three remedies that may be used in this condition, with definite indications for the employment of each. 3. In a case of nephritis, indicate the various conditions that must be considered; state the appropriate remedies for each condition and give definite reasons for the use of each remedy. 4. In acute endocarditis, state the ordinary causes and possible complications, outline the management and give reasons for the employment of the more usual remedies. 5. In acute gastro-intestinal catarrh outline the several indications for treatment, with definite instructions as to remedies and reasons for their use.

SURGERY, ANATOMY

1. Describe an approved method of performing vaccination; enumerate such complications as may arise and state the reasons for those possible complications. 2. In fracture of the lower end of the radius ("Colles' fracture") state (a) the usual displacement, (b) the muscles causing same, (c) the method of reduction. 3.

State, first, what you consider the favorable conditions in a patient to whom is being administered (a) sulphuric ether, (b) chloroform; second, the unfavorable or alarming conditions that might be present with either drug. 4. Name three forms of bowel obstruction; outline briefly the symptoms that are common to each; outline a surgical operation that may be required in any one form selected. 5. Describe the normal relationship of the bony landmarks at the elbow-joint; state the alterations that may occur in these landmarks in (a) anterior luxation, (b) posterior luxation, (c) fracture of the olecranon process. 6. In fracture of the neck of the femur, state the usual deformity and the anatomical explanation of the same. Describe an external test line used in diagnosis of some hip-joint conditions. Briefly outline two methods of treatment of fracture of the neck of the femur. 7. Name three forms of abscess that may occur in the vicinity of the rectal orifice; state the directions that pus may burrow if left unchecked; briefly outline the surgical treatment of two forms of abscess. 8. State two paths along which infections may reach the kidneys. State the local and constitutional symptoms of pyonephrosis. 9. If called into the country to do an appendectomy; make complete lists (a) those things that you would desire them to furnish at the house of the patient, (b) those things that you would bring with you. 10. Describe methods of treatment of patient who has been subjected to an electrical current of high voltage.

Book Notices

THE PSYCHONEUROSES AND THEIR TREATMENT BY PSYCHOTHERAPY. By Prof. J. Dejerine, Professor of the Clinic for Nervous Diseases of the Faculty of Medicine of the University of Paris, and Dr. E. Gauckler. Authorized Translation by Smith Ely Jelliffe, M.D., Ph.D., Adjunct Professor of Diseases of the Mind and Nervous System, Post-Graduate Medical School and Hospital, New York. Cloth. Price, $4. Pp. 395. Philadelphia: J. B. Lippincott Company, 1913.

In the present conflict of opinion as to the most plausible theory concerning psychotherapeutics, the most important part of the subject, namely, the actual practice of psychotherapy, seems to have been overlooked. In other words, we hear a good deal about this or that theory of psychotherapeutics, but little or nothing is done in the way of real psychotherapeutic endeavor. The book before us represents a sincere effort on the part of its authors not only to practice psychotherapy, but also to give the reader guiding principles. A beginning was made several years ago when Dr. Smith Ely Jelliffe translated Dubois' popular book on the subject. Since then the practitioner has been eagerly awaiting a work which might furnish him with methods and results. The work under review, also translated into English by Dr. Jelliffe, embodies the principles and practice of psychotherapy as followed by Dejerine. The book is divided into three parts. The first section is devoted to a study of the symptoms which may be observed in the course of the psychoneuroses. This is a purely analytic study, in which symptoms are traced to their supposed origin and proved to depend almost entirely on mental and moral causes, with the greater emphasis on the moral. In the second division of the book, which might well be called the psychologic portion, the authors endeavor to explain the general mechanism underlying the causation and continuance of the symptoms constituting the psychoneurosis. In the third division the authors set forth the psychotherapeutic measures to be employed in the treatment of the psychoneuroses. Quite naturally we are more interested in the last portion of the book than in the preceding ones, as the distinctive features lie in its psychotherapy. Dejerine, who had ample opportunity to study the psychoneuroses, had made the discovery early in his career that the causes of hysteria and neurasthenia must lie outside the objective symptoms, since little or no success was obtained from the employment of medicinal and mechanical measures. Further, he discovered, contrary to the views expressed by Dubois, that to obtain results the treatment must not be based solely on reasoning and argument. "If reason and argument were sufficient to change one's mind," he says, "the neuropaths would find in the writings of the moralists and philosophers and spiritual advisers everything they would need to reconstruct their morale, and consequently their physical well-being; and therefore they would have no need of a psychotherapeutist." According to Dejerine, reasoning by itself is insufficient to produce cures—the emotional element is just as important, if not more so. It is the feelings or emotions—the morale—which produce beneficial results, not the mere idea; the idea never moves one unless it is accompanied by an emotional appeal which makes it acceptable to consciousness and thus brings about conviction. For this reason he deprecates the use of hypnotism and suggestion in the waking state, both of which are appeals to the subconscious, unfeeling part of human nature. In order to test his views an isolation and psychotherapeutic ward was established in his service at the Salpêtrière. Here several thousand patients who could not afford a sojourn in a sanatorium received free treatment. The results were highly satisfactory and far surpassed the author's expectations. This success he attributes entirely to the so-called moral treatment. The book is well written and conducive to original thought.

ELEMENTS OF BACTERIOLOGIC TECHNIC. A Laboratory Guide for Medical, Dental and Technical Students. By J. W. H. Eyre, M.D., M.S., F.R.S., Director of Bacteriological Department of Guy's Hospital, London, and Lecturer on Bacteriology in Medical and Dental Schools. Second Edition. Cloth. Price, $3 net. Pp. 518, with 219 illustrations. Philadelphia: W. B. Saunders Company, 1913.

This edition contains much that is new in addition to a revision of all the old matter. As a laboratory guide for students in bacteriology, however, the book is somewhat too elaborate in most of its discussions and falls short of the mark in others. For instance, the book gives twelve methods for making anaerobic cultivations and offers no discrimination as to the one to be employed. Elaborate apparatus is pictured, which for the ordinary man is absolutely useless. On the other hand, the book makes no mention whatever of methods for preparing vaccines, although it attempts to give a complete discussion on immunization. Some of the illustrations are so elementary as to be hardly worthy of the space they occupy and others so elaborate as to be useless for anyone but the specialist. As a book of reference on the subject it would seem to have some place in medical literature, but as a laboratory guide for medical, dental and technical students, which it presumes to be, it can hardly be said to fulfill its purpose.

DIE NERVENPUNKTLEHRE. Von Dr. A. Cornelius, Oberstabsarzt a. D. Volume II; Neurologie und Nervenpunktlehre. Paper. Price, 7 marks. Pp. 303. Leipsic: George Thieme, 1913.

After perusing this verbose and self-laudatory volume the reader is left with the painful impression that, like most other countries, Germany suffers from charlatanism. The author under the guise of science attempts to prove that almost all diseases that human flesh is heir to have their origin in disordered peripheral nerves; not the peripheral nerves that anatomists have taken pains to outline and describe, but nerve-points which only the author has discovered to be at fault. The inference is that he, the discoverer of this unknown territory, must become the guide. In a previous work he even gives a complete chart of these nerve-points, which strongly reminds one of Dr. Cook's map of the north pole which he has never seen. The author, like his compatriot, Dr. Friedmann, has been thoroughly discredited in his own country.

WHEN TO SEND FOR THE DOCTOR AND WHAT TO DO BEFORE THE DOCTOR COMES. By Frieda E. Lippert, M.D., Assistant at the Psychological Clinic, University of Pennsylvania, and Arthur Holmes, Ph.D., Assistant Professor of Psychology, University of Pennsylvania. Cloth. Price, $1.25 net. Pp. 265, with 17 illustrations. Philadelphia: J. B. Lippincott Company, 1913.

This little book gives brief and pertinent directions for determining whether or not a child is ill; if it is ill what the probable trouble is and what is best to do until expert advice is available. The directions cover speech defects, minor deformities and mental backwardness. It ought to be very useful to the mother and the teacher.

MANUAL OF OPERATIVE SURGERY. By John Fairbairn Binnie, A.M., C.M., Surgeon to the General Hospital, Kansas City, Mo. Sixth Edition. Cloth. Price, $7 net. Pp. 1,251, with 1,438 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

This edition of Binnie's manual shows the continuous improvement which has characterized previous editions. Considerable space is given to the more rare and difficult operations, such as hypophysectomy, and to good discussions of the many operations familiar to all surgeons. Chapters devoted to operations on the stomach have been practically rewritten

Medicolegal

Construction of Statute Relative to Privileged Communications —What Adjudged Waivers—Application to Several Physicians

(Epstein vs. Pennsylvania Railroad Co. (Mo.), 156 S. W. R. 699)

The Supreme Court of Missouri reverses a judgment of the St. Louis Court of Appeals which affirmed a judgment for the plaintiff for personal injuries and held inadmissible the depositions of a Dr. Phelps and a Dr. Christie, both of whom were present while the plaintiff was being examined and treated and consulted with touching his injuries by a Dr. Elston, who was permitted to testify for the defendant without any question of statutory privilege being raised.

The Supreme Court, adopting the opinion of Faris, J., delivered in Division 2, says that no point was made touching whether or not Christie and Phelps fell under the facts within the category of those to whom the statutory privilege applied; it seemed to be tacitly conceded by the defendant that they were within the rule. Implied waiver arising from the facts was alone relied on. From the language of the statute, as well as from the trend of decision, the court deems it plain that these physicians were incompetent, unless from the facts implied waiver might be deduced.

The Missouri statute provides, that "the following persons shall be incompetent to testify . . . a physician or surgeon, concerning any information which he may have acquired from any patient while attending him in a professional character, which information was necessary to enable him to prescribe for such patient as a physician, or do any act for him as a surgeon." It will be noted that there is no provision touching waiver or any method of express waiver noted in this statute. Analyzing this clause, we see that all that is required is that the information be obtained by the physician while attending the patient in a professional capacity (thus excluding the necessity for the existence of an express, or even implied, contractual relation for hire, and including all cases in which from the nature of the services intended, or rendered, the relation of physician and patient arises). The information must be acquired while attending the patient in a professional capacity (thus excluding information obtained by a physician on a call on his patient in a non-professional capacity, for example, as on a social call or a call on other than professional business). And the information obtained in the capacity and under the circumstances above set forth must be such as is necessary to enable the physician to prescribe (thus excluding and rendering competent facts outside, and not cognate to, the patient's injuries and diseases).

The incompetency of a physician to testify rests solely in statutory enactment. It was unknown at common law, where the rule was that whatever silence might be enjoined on the physician outside of a court of law by the ethics of his profession, yet within a court of law he must unbosom himself of all facts within his knowledge touching the matter under inquiry, however obtained, present other requisites of admissibility.

Not all of the states, perhaps a bare majority only, have such a statute. It will not avail to say that the court is bound to a hard and fast construction of the statute—that it is to the court an iron-bound law of the Medes and the Persians, eternally unchangeable—and that the court cannot by construction engraft on it a single abatement, in jot or tittle, by invoking the doctrine of waiver, because, forsooth, there are no waivers or provisos therein expressly written. The court has, as has every civilized court where the statute exists, already engrafted by construction waivers on it, which are now so well settled as not to admit of question or quibble; for example, the patient may waive the privilege by calling his physician as a witness; the insured may waive the privilege, in any subsequent action, by contract in the policy of insurance. Other waivers, not so well settled, but well decided and resting on the soundest logic and reasoning, are (*a*) that if a physician to a patient-party in an action be called in the first trial by the adverse side and be allowed to testify without objection, then such act is a waiver of objection in any subsequent trial; (*b*) if the adverse side examine the physician of the plaintiff as to the fact of treatment, cross-examination by the patient's attorney as to the patient's condition operates as a waiver; (*c*) by failing to object to the question, the answer to which would involve disclosures of privileged communication between the physician and himself, the patient waives the privilege; and it has been said that it is too late to object, if the question has already been answered, that a motion to strike out the answer will not lie; and (*d*) by himself giving in evidence voluntarily the facts and nature of his ills and the communications had with and acts done by his physician in treating him, the patient waives his privilege to object.

It would seem, in reviewing the authorities, that much of this court's difficulty in harmonizing holdings has arisen from its efforts, and the efforts of other courts as well, to follow the holdings of the New York courts, which, however, touching the matter of waiver, are "cabin'd, cribb'd, confined," by their statute, which provides that the privilege granted to physicians of not testifying shall apply unless its provisions "are expressly waived on the trial or examination, by the person confessing, the patient or the client." This court concludes then, that indubitably the privilege of not testifying, as granted to a physician by the Missouri statute, is a privilege inuring alone to the patient, which the patient may waive, either expressly or by implication.

Was the testimony of Drs. Christie and Phelps, under the facts and the law, competent? If it was so competent, such competency, the court must concede, arose on waiver by the plaintiff in some wise occurring from what he said and did, or neglected to say or do; for the court thinks that these physicians, though not connected with the hospital, and inferentially only proffering aid in a great calamity for humane reasons, were yet in the shoes of those privileged by statute, absent waivers. Furthermore, the court thinks that these two physicians were competent witnesses, and that the court below erred in holding the contrary. Since the plaintiff had himself voluntarily gone on the stand, and, in his case in chief, as a witness for himself, laid bare for lucre's sake all of the secrets of his sick-room; since he had told and retold what Dr. Elston, his physician, said to him, and what he said to Dr. Elston; since he had told the precise nature of his alleged hurts as he said Dr. Elston found them, and since he had also voluntarily related the treatment professionally given to him by Dr. Elston, he waived the competency of other physicians, also there present, having knowledge of the identical facts.

Chief Justice Lamm, in a concurring opinion, says that, as he sees it, the rule announced does not come to destroy the statute, but to fulfill the statute in its very soul and sense; that is, its true intendment and meaning. It goes without saying that waiver should not be applied to every case mechanically and without reference to the facts, but with just discrimination and in view of the facts of each case. So used it is constantly applied in court as a most wholesome and useful device in reaching a just end.

While some of the language of the opinion is a little broad, yet such general language must be read with the concrete case held in judgment, and, so read, it does not mean that if a litigant uses a physician as a witness, thereby, and without more, every other physician he has ever had at other times, places or occasions may be thereby allowed to break the seal of professional secrecy. Nor does it mean that, a litigant saying or doing nothing of substance to lift the statutory veil of secrecy imposed on sick-room disclosures to his physician (arising by examination, conversation or consultation there), his physician may be allowed at the beck and call of the adverse party (and without leave or waiver by the patient party) to himself break the virgin seal of secrecy or lift its veil. If the privilege is personal to the party, and is thereby held in the hollow of his hand, why may it not be

waived by act, conduct or word for the time, place or occasion in hand? If once waived, must the waiver not be held to operate to an extent limited only by logic and reason? The scandals in beating down the truth arising from a too harsh and literal interpretation of this law (if unaided and unrelieved by waiver) every one of us knows by experience and observation in the court-room. The application of such law must be with discrimination, so that it may have the legislative effect intended for it, and yet the investigataion of truth be not unnecessarily thwarted.

Society Proceedings

COMING MEETINGS

A. Assn. for St. and Prev. of Inf. Mort., Washington, D. C., Nov. 14-17.
American Physiological Society, Philadelphia, Dec. 27-29.
Clinical Congress of Surgeons of N. A., Chicago, Nov. 10-15.
Society of American Bacteriologists, New York, Dec. 31-Jan. 2.
Southern Medical Association, Lexington, Ky., Nov. 18-20.
Southern Surgical and Gynecological Assn., Atlanta, Dec. 16-18.
Western Surgical Association, St. Louis, Dec. 19-20.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Thirty-Ninth Annual Meeting, held at New Orleans, Oct. 23-25, 1913

The President, DR. ALBERT E. STERNE, Indianapolis, in the Chair

Some Phases of Kidney Surgery

DR. HENRY J. SCHERCK, St. Louis: The objection to fixation of a movable kidney is that we fix rigidly an organ which normally has considerable motion. Further, we seldom remove the symptoms for which the operation is done, for in many patients the kidney condition is only one expression of a general enteroptosis, so that less benefit is derived from the operation than would have been the case had the patient been given a rest cure, fattening process and suitable binder.

I do not believe that operation should be done in every case of stone in the kidney. We should have at least some other indication and no pronounced contra-indications before performing a nephrotomy. In traumatism to the kidneys my practice is to wait, and be governed by the subsequent indications before operating. The majority of these patients recover without operation, provided infection does not take place. The operation can be delayed unless the patient shows symptoms due to continued loss of blood.

I have had occasion to operate in quite a number of hypernephromas. Unfortunately, in the majority of the cases the diagnosis was made rather late, and the records show recurrences and metastases in the majority of those operated on. Practically, however, a sufficient percentage of cases with operation show results which warrant us in operating as soon as we can make a diagnosis, either from symptoms or by exclusion. Persistent hematuria, either intermittent or constant, without evident explanation, has determined me in many cases and is my present indication for an exploration, as in the presence of such symptoms I suspect hypernephroma. I have noted in many cases the predilection of hypernephroma for bone metastases.

The Civic Importance of Some Phases of the Neuroses with Suggestions as to Their Control

DR. ALBERT E. STERNE, Indianapolis: Of the many medical questions of civic importance probably none has acquired greater prominence than that of drug addictions. Individual health or precongenital defect in loss in earning power forms an economic civic problem of the highest order. In its ramifications it touches many social conditions. Its association with the vice situation brings it startlingly into the foreground. It is safe to assert that 80 per cent., probably 90 per cent., of commercial white slaves and their hangers on are users of drugs. There is not a single community in this country or anywhere else in the civilized world which has not suffered from the effect of this great social disorder concealed though it be as far as possible. Various states have legislated or sought to legislate and legitimatize the traffic in habit-inducing drugs. Indiana last year passed a law regulating the sale and use of these drugs, but the law is too faulty to be of much use. It was drawn by druggists, wholesale and retail, and never was designed to wholly prohibit trade in these nefarious stuffs. In Ohio a somewhat similar law is being urged. In several other states an analogous situation prevails. This whole question is not one limited to any city, state or states, but is country-wide and can be solved only by the federal government. Restrictive legislation and control by states will help to some degree, but unless some laws are obtained and are enforced by all states, anything like adequate results would be mere speculation.

I would emphasize the national regulation of all habit-forming drugs of every type, but especially those of opium and cocain derivation. Concisely my plan is: 1. The establishment of a national warehouse or central depository for imported opium and cocain and like raw drugs. 2. The establishment of regional or district depositories either for a group of states or, if deemed advisable, for each state, either for raw material, or manufactured products, or both. 3. The appointment of authorized pharmaceutical agents to convert the crude products into commercial form. These three departments would constitute the business plan, the proper operation of which would enable almost perfect control of raw material and finished product.

Child Culture the Function of Organized Medicine

DR. HENRY B. FAVILL, Chicago: Any improvement in the conditions of future generations must be accompanied by an improvement in quality. The question is, How can the human stock be improved? The control of the unrestrained breeding of defectives is immediate and urgent. This, however, is only a small part of the problem. The real question is not how to prevent the bad, but how to develop the good. The difficulty is that our knowledge of heredity is not as yet sufficient to enable us to control conditions. The most that can be accomplished at present is the creation of a public sense of conscience and responsibility, at the same time making every effort to increase scientific knowledge regarding the factors involved in heredity and eugenics. This is a field in which physicians must be able to qualify as experts. As a whole, the medical profession has not hitherto risen to the situation. Legislation cannot proceed in advance of public opinion, and public opinion will not allow an invasion of private rights without overwhelmingly positive evidence being presented. This evidence must be secured and properly presented to the public by scientific physicians, if a public feeling of social responsibility is to be developed.

Child psychology and proper methods of pedagogy are also involved. Teachers cannot be expected to solve the problems involved without assistance from physicians. Parents are in need of assistance from both physicians and teachers. We must make ourselves competent advisers to the parent and the teacher in order to develop in each child the best of which it is capable.

Sanitary science can control mass conditions, but great progress in the physical welfare of the race will not be made until individuals are thoroughly trained in ideals as to health standards and their obligations to others. It is a deplorable fact that in medical schools in this country, instruction in personal hygiene is almost unknown, and instruction in psychology is unheard of. The only explanation of this defect is that the profession has not as yet realized its responsibility in these directions.

The Council on Health and Public Instruction of the American Medical Association, has undertaken to ascertain the exact public health situation in this country by inaugurating a survey of all public health agencies. This involves a survey of the public health work being done by the national government and a comparison of federal health work in this country with that of other civilized nations, as well as the develop-

ment of practical plans for the establishment of a national Department of Health that will be second to none in importance in the government. Of still greater importance in this country is the state health work. Yet no one knows what is being done by the various state boards of health, because there is no standard or basis of camparison. The council has undertaken a detailed and painstaking study of this question. A trained sanitarian of the highest rank is about to make a personal study of every state board of health to discover the work, powers, equipment and support of the health department in different states. After this has been completed, a similar survey of the municipal health work is planned. Aside from official health activities, there are in this country many organizations springing from private initiative and supported by popular subscriptions. The importance of these organizations cannot be overestimated. Through a central committee, a similar survey of the work of these organizations will be carried on.

While the council is carrying on these investigations as to the existing health conditions, it has also started definite measures for the education of the public. A press bureau has been organized, which sends out to five thousand newspapers every week a press bulletin dealing with important public health subjects. The newspapers have recognized the fact that there is no sinister purpose or private interest behind this effort and they are using freely the material thus sent out. A speakers' bureau has been established, through which 130 of the leading physicians of the country are offered to local organizations for addresses on public health without expense to the local body. The speakers donate their time, the council pays their traveling expenses and the local organization furnishes the meeting place. A bureau of literature is also preparing and sending out pamphlets on public health questions, written for the instruction of the people. Many special committees are at work on special subjects.

A medicolegal bureau has been established to study public health laws in this country and others, and to draft, with the assistance of prominent educators, social workers, lawyers, judges, governors, and others, model laws for the protection of the public health. We recognize that in this work the legal point of view must be common.

Endocarditis with Special Reference to Its Etiology

DR. ROBERT H. BABCOCK, Chicago: The tonsil is the most frequent atrium of infection in rheumatic fever and endocarditis of whatever type. I have made it a rule to investigate the condition of the tonsils in all cases of acute or chronic valvular diseases coming under my observation, and I invariably discover evidence or obtain a history of previous tonsillar infection. The main reason, perhaps, why the etiologic influence of follicular tonsillitis is not recognized more often is that the tonsillar involvement is very apt to precede the rheumatism by a number of days or even weeks. This is owing to the fact that time is required for the hemolytic streptococcus causing the tonsillitis to become converted into the rheumatic streptococcus. When this has been accomplished the latter strain is taken up by leukocytes and carried into the blood, and then is conveyed to the joints or to the capillaries of the valves where they set up the characteristic inflammation, and we see the phenomena of articular rheumatism and endocarditis, or in the case of a child only an endocarditis without joint involvement.

If the cardiac structures are not too extensively or malignantly affected the patient recovers in the course of time, but with a permanent valve lesion. In most cases the person suffers from recurrences of the rheumatism either acutely or in a mild subacute form, or every now and then he has an attack of tonsillitis of greater or less severity, usually the latter. Not infrequently the child has attacks of stomach trouble that puzzle the doctor as well as the parents. Such attacks are generally attributed to indiscretion in diet.

In many cases I have discovered slight, but to my mind convincing, evidence of appendiceal mischief and have attributed these stomach attacks to acute exacerbations of a chronic appendicitis. Generally, the family physician or the parent has been unwilling to accept the diagnosis and the case has been allowed to go on.

The *Streptococcus viridans* is a strain or modification of the pneumococcus. It does not itself occasion tonsillitis, but finds an unhealthy tonsil good soil for its growth. Consequently, it can be taken up by the leukocytes and carried into the blood-stream to lodge in the capillaries of the heart valves in the same manner as are the germs of rheumatism. If the capillaries are fairly abundant, as in the young, the bacteria may be attacked by the phagocytes and destroyed before they have time to grow and multiply. But if the capillary supply to the valves is poor, as is the case with sclerotic valves from former endocarditis, then leukocytes cannot get at and destroy the streptococci which, therefore, grow rapidly and produce massive vegetations.

Take care of the throats of children by the removal of adenoids and the correction of any other defect that predisposes to throat infections. Never regard any sore throat or tonsillitis in the young as trifling, and whenever a child displays languor, slight fever, etc., examine the throat. In any person with valvular disease who has recurring sore throat or rheumatic pains pay strict attention to the care of the throat, and if the tonsils are diseased, even though not enlarged, have them taken out, not merely clipped. Do not pass over recurring attacks of so-called indigestion with fever in a child with an endocardial lesion as merely a "stomach attack." Bear in mind the possibility of appendicitis in association with or as a result of rheumatic infection and tonsillitis, and direct particular attention to the appendix. A chronically infected appendix may serve as the atrium of infection.

The Functional Testing of the Cardiac Power

DR. CHARLES SPENCER WILLIAMSON, Chicago: In diseases of the cardiovascular apparatus, the examination of the quietly resting patient gives us no clew as to the functional efficiency of his heart, unless manifest signs of cardiac insufficiency are present. The most satisfactory method of arriving at a knowledge of the functional efficiency of the heart is by subjecting the patient to exercise tests. None of the methods which have been as yet devised are free from sources of error, and none furnishes a numerical estimate of the cardiac strength.

It is possible to obtain a very accurate estimate of the functional heart power by submitting the patient to an accurately measured exercise, such as climbing a certain number of steps, and by observation of the pulse, respiration and blood-pressure, together with the quickness of the return of these to the normal. The severity of these exercises should be strictly individualized, and in every case adjusted to the patient's general muscular development and conditions. For more scientific work, the only method which is capable of giving numerical results is that of obtaining the size of the heart before and after exercise, as determined by the orthodiagraphic method or some of its modifications.

Thrombosis and Embolism

DR. W. L. BIERRING, Des Moines, Iowa: In a series of seven cases of circulatory accidents, the acute infectious process in four instances was an acute tonsillitis, and one example of acute pleurisy and pneumonia, influenza (lymphadenitis), and appendicitis. As regards localization, the posterior tibial artery was involved in two cases, the middle cerebral three times, the axillary artery once, with one example of femoral thrombophlebitis and two of cerebral sinus thrombosis. In two cases multiple embolism occurred in the same patient. In summarizing our series of cases, which were all instances of acute infection accompanied by general bacteriemia or septicemia, tonsillitis, and apparently acute infection of the upper air passage, played a prominent rôle.

DISCUSSION ON DISEASES OF THE HEART

DR. JAMES BIRNEY GUTHRIE, New Orleans: For a number of years I have been an exponent of the light percussion

method of outlining the borders of the heart. The procedure of outlining the heart by percussion or roentgenoscopy before and after cough, timing the return to the original size of the outline, is a most valuable index of the integrity of the heart muscle. The healthy heart dilates on coughing to a degree perceptible during roentgenoscopy, but not appreciable by percussion. The time factor is quite as important as the measurement of the outward displacement of the right heart border. The graver the heart weakness, the longer the dilatation lasts. The longest cough dilatation time observed so far has been fifteen minutes and the shortest five seconds. This statement is based on careful examination of over one hundred cases. It is probable that this range of cough dilatation time will be extended on further observation.

DR. ALBERT E. STERNE, Indianapolis: I wish to report a case of chorea, arthritis and endocarditis in a girl. A month or so before I saw her she had fallen down stairs and cut her forehead. The injury seemed trivial, but the wound did not heal, and in spite of every measure at the hands of an excellent surgeon the wound continued suppurating. In the course of the second week after the injury she developed polyarthritis. In the course of a few days, after the joint invasion, she developed a profound and severe form of chorea of the ordinary type. These cases usually develop severe infectious endocarditis, and in this case, in the course of a few days, the endocardial lesion occurred. Under careful treatment this child seemingly did very well, but she did not regain her strength; the joint condition practically disappeared, the chorea subsided, and the heart murmurs lessened, but did not entirely disappear. In about four weeks after the time the heart lesion first manifested itself the joints again became inflamed; the chorea again became severe; the heart sounds again became murky, and the child died of all the symptoms characteristic of thrombosis and embolism of the several sinuses.

DR. F. M. POTTENGER, Monrovia, Cal.: In advising the removal of tonsils I have sometimes wondered whether or not in removing them we were not taking away a source of protection to the patient. I have had the tonsils of my own children removed, but at the same time I feel that probably we are doing wrong in taking the attitude we do toward the tonsil as a whole.

DR. WALTER L. BIERRING, Des Moines, Iowa: It is a matter of great interest to note that the relationship existing between focal infection, particularly of the biliary or intestinal tract, and its influence on the heart muscle and on the endocardium, is being corroborated by the work of Rosenow. Rosenow has established that acute infection of the tonsils, the endocardium and the appendix are all the same. He has gone still further and by modifying the organisms has produced experimentally cholecystitis with the same organism, and in another dog has produced typical round ulcer of the stomach.

DR. ROBERT H. BABCOCK, Chicago: We are not justified in recommending the removal of healthy tonsils, whatever their exact function may be, but when a tonsil is no longer healthy, when it is diseased, I believe that the tonsil should be enucleated to safeguard the patient.

Differentiating Between Active, Quiescent and Healed Tuberculosis by the Character of the Reaction to the Cutaneous Tuberculin Test

DR. F. M. POTTENGER, Monrovia, Cal.: A positive clinical history, suspicious signs within the chest, and a maximum reaction to tuberculin within the first twenty-four hours give us grounds for making a diagnosis of active tuberculosis. With a questionable clinical history, questionable signs on physical examination, a reaction to tuberculin reaching its maximum after twenty-four, or particularly after thirty-six hours, I believe we are safe in saying that we are dealing with a partially quiescent lesion.

Results in the Treatment of Hip Disease

DR. JOHN RIDLON, Chicago: The mechanical treatment of hip disease aims to do for longer or shorter periods in most cases three things, namely, to immobilize the joint; to remove the weight of the patient from the joint in standing and walking, and to exert traction on the limb. A hip may be immobilized by a plaster-of-Paris spica as efficiently and as comfortably as in any way. The patient's weight can be removed from the joint by putting him in bed, this more efficiently than in any other way. Traction can be exerted by the use of weight and pulley, either with adhesive plasters applied to the limb after the manner of Buck or of Taylor. Some cases attain very good results without any treatment whatsoever; some attain very bad results under the most prolonged and best of treatments; but the orthopedic surgeon also knows that by treatment he lessens pain, shortens the duration of the disease, prevents a great deal of the deformity that would otherwise occur, and saves life.

The Feeding of the Sick Infant

DR. FRANK C. NEFF, Kansas City, Mo.: One should regard constipation as an evidence usually of an intestinal indigestion. The constipated new-born baby fed entirely on the breast is with difficulty relieved through the diet. Correction of the mother's diet, digestion and mode of living may be tried, but often has little effect on the child. I have never attempted to administer fruit juices to infants less than 3 months old, but older infants will often tolerate from a teaspoonful to a tablespoonful of orange, grape, pineapple or prune juice with good results. Supplemental feedings of cow's milk with the addition of a malted gruel, such as the so-called malt soup, show a beneficial effect on the gray, dry, soapy stools. The effect of malt sugar is laxative, and of more benefit than any of the laxative drugs. Following a disturbance in balance which is not corrected, there is a decided intestinal disturbance with numerous watery, mucous stools, vomiting, and an elevated temperature. Fats, sugars and flour must here be reduced, and in severe cases also the whey contents of the food. Breast milk is preferable to any artificial feeding. Next comes Finkelstein's *Eiweissmilch*, and, finally, skim or buttermilk in case the other foods are not obtainable. These should be given in small quantities at first.

The feeding of infants suffering from the systemic poisoning resulting from improperly digested and assimilated food and also from infections must provide for elimination through the kidneys and stools.

The feeding of infants with pylorospasm has as yet shown little advance. Lapage advises regulating the feeding, using easily digested food that leaves no residue and has the greatest chance of passing the pylorus. He states that it is advisable to give small amounts, even as little as a teaspoonful, frequently until the child improves and vomiting ceases. Sometimes a change of food alone will lead to temporary improvement. Feeding through a tube without much dilution of the food is advisable, after washing the stomach. Nutritive enemas are of doubtful value.

Pyloric Stenosis in Infancy; an Analysis of Twenty Cases

DR. H. M. RICHTER, Chicago: Of the twenty cases, eighteen were of the type described as hypertrophic pyloric stenosis; two were of the type known as spasmodic. In all of the eighteen a definite, firm, olive-shaped tumor was demonstrated at operation; in seventeen of the eighteen it was palpated and recognized through the abdominal wall before the operation. In the one case in which it was not palpable before operation, the clinical findings were so clear that the diagnosis was made without reserve. The tumor consisted of a firm, olive-shaped body, roughly from ½ to ¾ inch in length. It was covered by smooth, glistening peritoneum that had the appearance of being stretched over the mass. There was no external evidence of inflammatory reaction; no attempt at fixation. The mass was freely movable, and this mobility was recognized clinically and is, in fact, probably the cause of the frequency with which clinicians have failed to demonstrate it. The tumor had the firmness of cartilage; it was not soft or pliable in any case; there was no case in which its consistency made the finding questionable; no case in which a gradation could be made out between the tumor mass and the adjacent stomach and duodenum; it was sharply

defined. In two cases in which a pyloroplasty was done, and in one case that came to necropsy, a section of the pylorus showed the mucosa to be relatively redundant, so that it bulged out of the incision when relieved of the compression by the tumor. The histologic picture was that of a simple hyperplasia of the circular muscle fibers, with no change in any other structure of the pylorus.

The stomach, when it had not been emptied before opening the abdomen, was always found distended to a marked degree of tension; the duodenum was always empty and collapsed. It was perfectly evident that the tumor formed a complete obstruction of the canal. In none of the eighteen cases was there any congenital malformation, though in one a particularly short mesocolon made it impossible to do a retrocolic gastrojejunostomy.

I wish to emphasize, first, that the mortality has been reduced below that claimed by any method of non-surgical treatment, and second, and of equal importance, that the ultimate condition of the patient is that of a normal individual.

Some Points in the Treatment of Acute Ileocolitis

DR. J. ROSS SNYDER, Birmingham, Ala.: The first thing I insist on is that to be rational the treatment must be individual. There are, however, certain principles of treatment applicable to all cases. With the onset of the disease, it is imperative that the intestinal tract be cleaned out. My personal preferences for this purpose are castor oil by mouth and normal saline solution for irrigation of the bowels. If there is troublesome or persistent vomiting, the stomach should be washed; the washing to be followed by the administration of broken doses of calomel until ½ to 1 grain is given; and still later followed by castor oil. Although the initial purgation and irrigation are essential, I wish to protest against the practice of giving a daily dose of oil and of continuing frequent irrigations. This is not only useless but absolutely contra-indicated in that it destroys all possibility of rest to the inflamed and ulcerated bowel. If toxemia of grave nature accompanies the onset, a hypodermoclysis of salt solution should be given without delay. Given early in the attack, salt solution is often an excellent and sometimes necessary measure, but I am convinced that after the heart has been weakened by the ravages of this disease, the subcutaneous injection of salt solution is not only futile but it is capable of producing disastrous results by overcrowding the heart.

By stopping all food, by clearing out the intestinal tract and, if necessary, by the use of salt solution subcutaneously, the toxemia in the majority of colitis cases promptly subsides and the disease becomes a purely local one, demanding for restoration to normal nothing so much as rest.

If peristalsis continues irritable and excited, it is my practice to use opium more and more freely. Without its use in acute colitis, the disease is often unnecessarily prolonged and its dangers are frequently augmented. Children suffering from colitis bear opiates a great deal better than they do the wear and tear and the strain accompanying the irritable peristalsis. Once the intestinal tract has been relieved of toxic decomposing, and irritating food residue, opiates should be called into quick service and they should be given in amounts sufficient for the purpose intended. Rest is not only to be assured by withholding further purgation, by withholding food, and by the use of opiates, but the environments of the child should be made peaceful and quiet. The child should be kept in bed in the recumbent position.

AMERICAN ROENTGEN RAY SOCIETY

Fourteenth annual meeting, held in Boston, Oct. 1-4, 1913

(Concluded from page 1745)

Roentgen Therapy of Enlarged Thymus

DR. SIDNEY LANGE, Cincinnati: Desiring to prove the action of the Roentgen ray on the thymus I roentgenized a series of young rabbits. The result was a slight shrinking to complete fibrosis of the gland. It was possible to produce any desired degree of fibrosis by varying the intensity of the treatment, and the intervals between treatments. Clinically, the treatment of enlarged thymus with the Roentgen ray has produced equally good results. Roentgen therapy is the method of choice in cases of enlarged thymus in children, whether the symptoms be mild or urgent. In five cases treated by me splendid results were obtained. Children whose physical or mental development is retarded should be roentgenoscoped with a view toward determining whether the thymus is enlarged. Roentgen therapy as a precautionary measure or as a preoperative treatment may enable children of the so-called lymphatic type to withstand intercurrent disease, and anesthetics, which might otherwise prove fatal. I believe that the routine preoperative roentgenization should be resorted to in cases of hyperthyroidism, with a view to lessening the operative mortality. No untoward effects have thus far been noted.

Roentgenography of the Ileocecal Valve and Appendix

DR. JAMES T. CASE, Battle Creek, Mich.: In doubtful cases of appendicitis an injection of the colon with bismuth under the guidance of the fluoroscope followed by careful and intelligent palpation of the abdomen may be of service. When the lumen of the appendix is closed, bismuth will fail to enter, but in the large percentage of cases in which the appendix shadow can be studied under the fluorescent screen there are a number of facts capable of demonstration, such as the position of the appendix, its outline, whether it is kinked or obstructed, and even the presence of a pericolitic membrane. I have secured roentgenograms of bismuth in the appendix in over three hundred cases. In one series of 827 examinations the appendix had been removed in 64. Out of the remaining 763 cases the appendix was demonstrated in 273. I do not believe that the ratio of patent appendices can be very much greater than one in three of patients with gastro-intestinal symptoms. I do not assert that every appendix which permits the entry of bismuth is in need of surgical attention. There are many cases in which surgery is distinctly not indicated, for instance, when the contents of the appendix have disappeared by the time the colon is emptied. I examined five patients who were being given bismuth in 15-grain doses in the course of treatment of acute gastric disease. In all five bismuth was found in the appendix, in one of them on the nineteenth day after the last dose of bismuth. In my series of 273 cases in which the appendix was filled with bismuth there was definite tenderness over the appendix in 236 patients. The appendix has been removed in eighty-eight of these, and in all but a few pathologic reports showed disease of the appendix.

DISCUSSION

DR. W. B. CANNON, Boston: It has been shown conclusively that in cats and dogs there is a thickening of the circular muscles at the terminus of the ileum, a sphincter analogous to the pylorus and cardiac sphincter. Whether there is such a sphincter in man has not been settled. If there is actually a sphincter between the large and small intestines, it is quite conceivable that that sphincter is managed by conditions in the canal itself. The acidity of the stomach content holds the gastric sphincter closed. The acidity in the duodenum closes the pyloric sphincter. It is possible that the state of the food as it comes from the small intestine into the large serves to keep the valve closed. I have never seen food coming from the small intestine into the large forced back by antiperistaltic waves into the small intestine. On the other hand, the introduction of a large enema of starch paste and bismuth quite frequently is pressed back into the small intestine, which may mean that the ileocecal valve is incompetent. It may be competent for material which comes through it normally, but incompetent for material produced in an abnormal manner.

DR. A. HOWARD PIRIE, Montreal: I had a case in which the bismuth was seen in the appendix six hours after injection, and until twenty-two days afterward. On the forty-third day the patient was operated on for appendicitis. I do

not know whether or not bismuth was found in the appendix at that time, nor can I say whether the bismuth in the appendix caused the appendicitis. I believe not. In all probability this was one of those wide-open appendixes mentioned by Dr. Case. It probably should have been removed earlier than it was.

Roentgen Therapy of Gynecologic Conditions

DR. GEORGE E. PFAHLER, Philadelphia: In addition to the action of the Roentgen ray on ovarian tissue, there is good reason to believe that these rays have an atrophic effect on tumor tissue, especially fibroids of the uterus. The older the patient, the more prompt and more satisfactory will be the result. Under 40 Roentgen therapy is not the method of choice. Fibroids that have undergone malignant degeneration or that have become gangrenous should not be treated. Roentgen therapy has also accomplished good results in some cases of hemorrhage connected with inflammatory disease of the adnexa. It is indicated in those cases in which operation is contra-indicated. There is no case on record of subsequent malignant degeneration of the fibroid following Roentgen therapy. The advantages of this treatment are that it is painless; it avoids the shock of an operation; it preserves to a certain extent the internal secretion which is lost in a complete oophorectomy; it does not interrupt the usual habits; in the hands of a skilful operator it is without risk; the menopause is brought on gradually, and the amount of treatment can be adapted to the needs of the patient. Among the disadvantages are the prolonged course of treatment that is usually necessary, and yet it is probably no more than equal to the time required for operation and convalescence. There is danger to the overlying tissues if the rays are not properly applied. In the hands of the skilful operator there are no untoward effects. I have had a considerable number of cases of hemorrhage and uterine tumors in which I have obtained splendid results.

DISCUSSION

DR. EDWARD H. SKINNER, Kansas City, Mo.: There is no doubt of the value of the Roentgen ray in postclimacteric bleeding, small intramural fibroids which occur with bleeding near the menopause and metropathia. In these the percentage of cures is high. I would warn against this treatment when there is degeneration of the fibroid or myoma, papillary fibroid or infections in the uterus, when pressure symptoms are present, when the patients are under 40, and the hemoglobin under 50 per cent. I would emphasize the necessity of securing intensive treatment in sufficient doses and administered by a competent roentgenologist.

DR. A. HARTUNG, Chicago: I have treated a number of these cases and can confirm Dr. Pfahler's observations. Dr. Wiener, with whom I work, feels that some of these fibroids are of tuberculous origin. He has obtained a positive tuberculin reaction and has treated some patients with tuberculin, securing a decrease in the size of the tumor and partial cessation of the hemorrhage. Combining the roentgenotherapy with the tuberculin gave better results than either method alone.

DR. EDWARD C. TITUS, New York: I have treated about forty-five patients in the past seven years and all are well to-day. In a number of the cases the tumors have disappeared entirely, and in others the mass is very small and causes no trouble. The symptoms have disappeared.

Roentgenoscopy of the Mastoid

DR. SIDNEY LANGE, Cincinnati: The mastoid may be the seat of an unmanifested infection. In every case of brain tumor or abscess, meningitis or when a hidden focus of infection is suspected, the mastoids should be examined roentgenographically. I have had a considerable number of cases in which I have made some interesting observations, especially with reference to the absence of mastoid cells on one side. In one case there was a congenital atresia of the right external auditory canal with deafness of the right ear. The left ear had been the seat of a chronic otitis media and the hearing on that side was much impaired, leaving the patient almost deaf. The roentgenogram revealed an apparently normal mastoid process on the right side, justifying an operation to open the external auditory canal. A fair degree of hearing developed in the right ear after the operation.

Roentgenoscopy of Head Injuries

DR. ALFRED L. GRAY, Richmond, Va.: Head injuries, especially in children, are very common. Roentgenoscopy should determine not only the presence of fracture, but whether or not an operation is indicated and, if it is, where it should be performed. The head must be held absolutely still during the examination. I accomplish that by means of gauze bandages placed around the head in such a manner as to make counter-pull. Stereoroentgenography is the preferable method.

Roentgenoscopy of Children's Heads

DR. P. M. HICKEY, Detroit: Stereoroentgenograms should always be made in these cases, and in order to make a proper interpretation a thorough study of the anatomy of children's heads is essential to success. We should remember the development of the head from the very beginning.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October, LXVIII, No. 430, pp. 617-816

1 New York Obstetrical Society and What It Has Contributed to Progress of Medicine. J. R. Goffe, New York.
2 *Contraction Ring Dystocia. P. T. Harper, Albany, N. Y.
3 *Arterial Ligation, with Lymphatic Block, in Treatment of Advanced Cancer of Pelvic Organs—Report of Fifty-Six Cases. W. S. Bainbridge, New York.
4 *Case of Total Occlusion of Cervix and Partial Obliteration of Uterine Cavity after Puerperal Sepsis. E. A. Bullard, Brooklyn.
5 Some Gynecologic Disorders Dependent on General Rather than Local Causes. J. R. B. Branch, Macon, Ga.
6 Prolonged Amenorrhea with Bilateral Ovarian Dermoid Cysts. S. Wiener, New York.
7 *Treatment of Anteflexion, Defective Function and Sterility by Glass or Silver Stems. R. L. Dickinson and W. S. Smith, Brooklyn.
8 Decidual Casts. O. V. Huffman, Albany, N. Y.
9 Pathogenesis of Adenomyosalpingitis (Salpingitis Nodosa). M. Rabinovitz, New York.
10 *Carcinoma and Sarcoma Mammae; Kruckenberg Tumor; Adenomyoma Cervicis. E. Schwarz, New York.
11 Abstraction of Calcium Salts from Mother by Nursing Cause of Coagulation of Milk in Mammary Glands of Former. J. G. Drennan, Arrochar, Staten Island, N. Y.

2. **Contraction Ring Dystocia.**—Tonic and isolated contraction of Bandl's ring, Harper says, is not only a possible but also a not infrequent cause of dystocia. It is usually associated with and secondary to other causes of prolonged and obstructed labor. The etiology may be obscure. The dangers to the child are those of intra-uterine asphyxia from continued pressure when the condition is unrecognized or allowed to persist indefinitely, and shock and asphyxia from attempts at operative delivery. The fetal mortality is high. The dangers to the mother are those common to all operative obstetrical procedures. The maternal mortality should be low. The dangers of tetanus uteri are remote. The only positive physical signs are those obtained as a result of careful vaginal and lower uterine segment exploration. Contraction ring dystocia, Harper says, is to be suspected in cases of second stage delay where all other causes of dystocia have been eliminated or where those that may persist cannot of themselves explain the obstruction, and search for the ring should be made at once. Success in treatment depends on the early recognition of the tonically contracted ring, on the early disappearance of the structure, and on the early application of conservative methods of operative delivery.

3. **Arterial Ligation, with Lymphatic Block in Cancer of Pelvic Organs.**—Bainbridge employed this method of treatment in fifty-six cases. Barring five patients who died within from

two to ten days after the operation, the length of life varied from two months to two years and six months. Two lived two years; five lived one year and more. The effect on the symptoms was negative in 2 cases; improved in 24; doubtful in 2; entirely relieved in 4. The growth was apparently retarded in 25 cases; doubtful in 2; negative in 5. Hemorrhage was controlled in 25 cases; negative in 2; none present in 5. In the cases in which the result was negative there was slight venous oozing, but no real hemorrhage. Of the last 32 cases comprising the second series, 12 patients died, 3 were lost sight of, and 17 were living July 1, 1913.

4. **Total Occlusion of Cervix.**—The more common causes of uterine and cervical occlusion in 100 cases reviewed by Bullard were puerperal sepsis, injudicious use of steam as a uterine hemostatic, excessive curetment, the application of powerful caustics, such as fuming nitric acid and zinc chlorid, and scar contractions following obstetric lacerations. Then there were a few cases in which the atresia appeared to be a congenital malformation.

7. **Treatment of Anteflexion.**—A glass stem pessary of the Baldwin type, according to Dickinson, may be retained indefinitely within the uterus without causing discomfort or trouble, provided it is of the proper size and is watched for the first few weeks. The Dickinson hollow silver stem and the Outerbridge or Chambers spring may be used easily and effectively in office practice. The glass stem may be so used in some cases. A stem pessary may cure amenorrhea that all other means fail to affect. It may cure many cases of intractable dysmenorrhea where no pathologic lesion or deformity is in evidence. It may develop an infantile uterus, restore the organ of premature menopause or atrophy and bring back superinvolution to a normal condition. Ovarian enlargement will take place *pari-passu* with the uterine enlargement. In a certain proportion of cases it will cure sterility. In these cases it is not to be used until the semen has been proved to contain numerous spermatozoa of normal shape and vigor. All inflammatory conditions of the pelvic organs must be rigidly excluded. The same aseptic precautions should be taken during the introduction of the stem as in other surgical operations.

10. **Unusual Tumors.**—Schwarz reports a case of primary glandular carcinoma of the left breast, which after a number of years produced a metastasis in the right breast. But here also at the same time was found a spindle-celled sarcoma, while of two neighboring glands one is sarcomatous (subclavicular) and the other carcinomatous (axillary). The two malignant growths have no relationship whatever. The fact that two sarcomatous nodules appeared practically at the same time, one in the breast and one in the lymph-node, Schwarz says, points strongly to the conclusion that both are metastases from a primary growth in some distant organ.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

October, I, No. 4, pp. 263-352

12 List of Mosquitoes Hitherto Reported from New Orleans. C. Wellman and H. D. King, New Orleans.
13 Agamomermis Restiformis (Leidy), Stiles, (?) from Human Urethra. A. J. Smith and O. E. Denney, Philadelphia.
14 Proper Diet in Tropics, with Some Pertinent Remarks on Use of Alcohol. A. Eustis, New Orleans.
15 Remarkable Emaciation in Case of Uncinariasis. A. Moore, Memphis, Tenn.
16 Rapid Cure of Polyneuritis Gallinarum by Intramuscular Injection of Substance Isolated from Rice—Pathology of Disease. C. Wellman, A. C. Eustis and L. C. Scott, New Orleans.
17 Bacteriologic Study of Water-Supply of New Orleans. C. L. Jacob, New Orleans.

Boston Medical and Surgical Journal

October 30, CLXIX, No. 18, pp. 629-664

18 Treatment of Scoliosis. R. W. Lovett, Boston.
19 *Observations in Two Hundred Cases of Gastric Disease. C. L. Scudder, Boston.
20 Farmer and Hygienist. P. W. Goldbury, Warwick, Mass.
21 Persistence of Agglutinins for Bacillus Dysenteriae in Danvers Hospital Cases. M. M. Canavan, Boston.
22 *Furunculosis of External Auditory Canal: Use of Alcohol as Valuable Aid in Treatment. O. A. Lothrop, Boston.
23 Treatment of Delirium Tremens by Subdural Injection of Sodium Bromid. S. P. Kramer, Cincinnati.

19. **Gastric Disease.**—Scudder has taken the following attitude toward chronic ulcer cases before operation: All cases showing stasis should be operated on at once. A posterior, no-loop gastro-enterostomy is the preferable operation. Every patient who has had a month to six weeks of the best medical treatment in bed and has relapsed and remained uncured should be operated on. He believes that plastics should be done on the stomach only in the presence of definite demonstrable pathology. At operation only those chronic ulcers should be excised which can be readily removed. If excision is undertaken it should be through the entire transverse diameter of the stomach. This will give a better functional result than when the ulcer is simply excised from the stomach wall. If an ulcer is simply cut from the stomach and the stomach deformed by suture then a posterior gastro-enterostomy should be done. The motility of the stomach is sufficiently impaired in some cases to make this a good general rule. An ulcer on the anterior wall of the duodenum may be excised, but it is hardly necessary.

If the ulcer is duodenal a thorough folding in of the peritoneum and duodenal wall should be done, followed by a posterior gastro-enterostomy. Ulcers away from the pylorus, if not resected, will probably heal more quickly if a posterior gastro-enterostomy is done. Bile and pancreatic juice gain access to the stomach and bathe the ulcer in an alkaline medium which facilitates healing.

Scudder is not yet convinced that the likelihood of cancer developing on ulcer is so great that he would resect every accessible ulcer from the stomach. Very many ulcers will never become cancerous, for all ulcers are evidently not potentially malignant. Scudder quotes as follows:

Kocher has reexamined eighty patients demonstrated at operation to have had chronic ulcer (1890-1912), and none of these cases in 1912 has developed carcinoma. Seventy of these cases had had gastro-enterostomy done and ten were resected.

22. **Furunculosis of External Auditory Canal.**—Lothrop's technic is as follows: The canal is cleaned of cerumen, desquamation, discharge, foreign bodies or polyps. A wick is now inserted into the canal, nearly to the drum membrane, completely filling the lumen. If there is no discharge cotton is used. If there is a discharge a gauze wick is used. If the canal lumen is partly closed by one or more distinct "ripe" furuncles, these should first be incised and the pus evacuated. Any incision should be carefully made into the center of the furuncle for, if this is not done, the pus does not escape and the patient is not relieved. In addition, there is danger of infecting a new area, and a perichondritis sometimes results from trauma to the cartilage. A probe point will often help to locate the center of a furuncle. After being inserted snugly into the canal, the wick is saturated with alcohol, plain or with boric acid, and the patient is instructed to keep the wick wet by dropping alcohol on it at frequent intervals. The wick should be removed daily by the physician and a fresh one inserted. Whenever a pocket of pus can be located it should be incised. After incision, the alcohol should be applied before the patient recovers from the anesthesia. The alcohol smarts on freshly cut or abraded surfaces with the first application, but gives very little discomfort at later applications.

Not only does the antiseptic action of the alcohol prevent more infection, but the saturated wick acts as a small poultice to the canal. If the inflammation has spread to the surrounding tissues, a poultice of a dilute sulphonaphthol solution over the auricle may be added to the above treatment.

Following this treatment by wicks saturated with alcohol, some of the early mild cases become abortive without surgical incisions. If the pain is severe and no pus can be definitely located it is better to administer an internal sedative and wait for the boil to become "ripe" and the pus to localize, rather than to make incisions at random. The canal should be moistened with alcohol for a time after apparent cure to insure against an immediate return of an infection.

Colorado Medicine, Denver

October, X, No. 10, pp. 281-322

24 Teaching Medicine in Denver. E. Jackson, Denver.
25 Rôle of Catharsis in Operative Conditions. G. H. Curfman, Salida.
26 National Insurance Act of Great Britain. R. Hudston, Denver.
27 Diagnosis of Pancreatic Efficiency. J. L. Mortimer, Denver.
28 Case of Carcinoma of Stomach and Intestine. M. Collins, Denver.

Indiana State Medical Association Journal, Fort Wayne

October, VI, No. 10, pp. 437-484

29 Pitfalls in Progress of Medicine. A. C. Kimberlin, Indianapolis.
30 Acute Postoperative Intestinal Obstructions. V. A. Funk, Vincennes.
31 Tuberculosis of Appendix. B. P. Weaver, Ft. Wayne.

Kansas Medical Society Journal, Kansas City

October, XIII, No. 10, pp. 385-424

32 Feeble-Minded as Revealed by Binet-Simon Measuring Scale for Intelligence. E. E. Liggett, Oswego.
33 Veratrum Viride in Puerperal Eclampsia. F. M. Wiley, Fredonia.
34 Auto-Intoxication. M. S. Thacher, Turon.

Medical Record, New York

November 1, LXXXIV, No. 18, pp. 783-828

35 Diagnosis and Treatment of Knee Lesions in Adult. V. P. Gibney, New York.
36 Rôle of Physical Exercise in Open Air in Prophylaxis of Tuberculosis. J. M. Anders, Philadelphia.
37 Liquor Legislation and Insanity. E. H. Williams, Montclair, N. J.
38 Diet Social Service in Dispensary Work. F. H. Klaer, Philadelphia.
39 *Postoperative Intestinal Stasis and Intra-Abdominal Use of Oil. W. F. Burrows, New York.
40 Detection of Disturbances of Digestive Tract by Examination of Feces. C. C. Sutter, Rochester, N. Y.
41 Experiments on Intradural Anastomosis of Nerves for Cure of Paralysis. W. B. Cadwalader and J. E. Sweet, Philadelphia.
42 *New Method for Determination of Uric Acid in Minimum Quantities of Blood-Serum and Other Fluids of Body. P. Roethlisberger, Geneva, Switzerland.
43 Ambulation and Full Diet as Factors in Diagnosis of Gastroduodenal Ulcer. F. B. Cross, Brooklyn.

39. **Postoperative Intestinal Stasis and Intra-Abdominal Use of Oil.**—Burrows has carried out a series of animal experiments showing the harmlessness and value of neutral mineral oil, used intra-abdominally. He states that in most simple abdominal operations its use is not required since prophylactic care will limit postoperative distress, but in all others the oil is of the greatest value when employed on abdominal pads during operation or sponged gently on intestinal coils previous to closure of the incision, excluding only areas where adhesions are desired and having care that all plastic procedures and intestinal anastomoses are completed before oil is introduced. In cases presenting extensive adhesions or wide-spread peritonitis, large amounts of oil (up to 6 or 8 ounces) are required to prevent recurrence or formation of adhesions, to limit the absorption of toxins from the peritoneal cavity, to assist nature in combating infection, and as a prophylaxis against intestinal stagnation, obstruction, spasm, and final paresis. In the case of more than moderate severity, intestinal spasm and stasis, together with abdominal pain, are largely eliminated and convalescence is more comfortable and safe, while the individual in dire straits at the time of surgical intervention has, postoperatively, manifoldly better chances of recovery.

His conclusions, based on the peritoneal reaction to chemical irritation and on the results of using neutral oil intra-abdominally to control infection and effects of traumatism, both mechanical and chemical, as observed in guinea-pigs and dogs, are as follows:

1. Iodin, mercuric chlorid solution, carbolic acid, alcohol, etc., applied to the peritoneum, rapidly spread beyond the area intended, through capillary action and affinity for the tissues, destroy the endothelial cells, cause an excessive exudate and tend to produce permanent adhesions.

2. Olive oil, containing fatty acids, and commercial liquid petrolatum, the impurities in which are acids, rosins, fats and oils, both animal and vegetable, combining irritating substances with a bland oil, produce inflammation of intact peritoneal surfaces, as is shown by the occurrence of a watery hemorrhagic exudate, which differs, however, from that which takes place in the absence of oil, in that agglutination and organization do not follow.

3. Bland, non-irritating oil, represented by a purified liquid petrolatum causes none of the changes occurring in the process of adhesion formation, which are endothelial cell injury, coagulable exudate, agglutination, organization, and finally connective tissue and fibrous scar formation. The oil has no appreciable chemical action on the tissues nor deleterious effect on the animal and is slowly absorbed.

4. Oil, used intra-abdominally in sufficient quantity, prevents, to a great extent, the formation or recurrence of adhesions.

5. Oil fills the lymphatic channels leading from spaces denuded of peritoneum or opened by incision, thus limiting septic absorption, and, through preserving the endothelial cells, prevents extension of destructive processes.

6. Oil is used to advantage, intra-abdominally, in place of salt solution, on abdominal pads, and to protect and lubricate the abdominal contents, thereby eliminating or minimizing postoperative intestinal statsis, vomiting and abdominal pain.

42. **Uric Acid in Blood-Serum.**—The technic of Roethlisberger's method is as follows: A small quantity of blood is drawn from the finger-tip or the lobe of the ear into a special glass tube, from 10 to 15 drops being usually sufficient for from six to nine tests, which are made simultaneously and serve to control one another. The glass tube must be kept in an upright position for several hours, until complete separation of the serum has taken place. If necessary—especially if placed in an even temperature—the blood may be kept from twelve to twenty-four hours. If kept for a longer period of time there will be loss of uric acid by fermentation or putrefaction.

The best environment for the test is a dark room with a red light, though equally good results may be obtained in a room with a subdued light, or one lighted by a small electric bulb placed at a distance of two or three yards. Two, three, or more strips of the reagent paper—a special kind of filtering paper impregnated with nitrate of silver—are placed on a glass slide. The silver paper should not be exposed to the light except during the time necessary for manipulations; in the intervals it must be screened. With a dropper, 15 per cent. solution of carbonate of soda is dropped onto the paper, allowing a certain margin to surround each drop. The drops must be very small and must absorb quickly, leaving a perceptible round spot. After waiting two or three minutes, a quantity of the blood-serum is withdrawn by a dropper from the glass tube containing the blood; it is dropped slowly on to the round spots made by the carbonate on the test papers. In two or three minutes more the strips of paper are lifted from the glass slide and placed to soak in a porcelain or earthenware dish filled with water The nitrate of silver now dissolves, while the carbonate remains insoluble. The basin must be kept covered to protect the strips of paper from the light until the nitrate is totally dissolved, which generally requires at least thirty minutes. They may be left to soak much longer without harm. The strips are now ready for fixation. They should be removed from the basin and placed in a solution of ammonia (one part of pure ammonia to four parts of water), which removes any unreduced carbonate of silver. Five minutes are sufficient for this process. The strips of paper are then placed in clean water screened from the light, to wash them thoroughly and to remove the ammonia and remains of the salts of silver. After remaining for several hours in the water, the strips are dried between blotting or writing paper, care being taken to protect them from the light. The dried strips are then ready to be placed under the scale; a color scale is necessary for the determination. By comparing the color and the intensity, the degrees of reaction and the proportion of uric acid contained in the blood can be determined. Only spots with distinct outlines are to be considered.

Missouri State Medical Association Journal, St. Louis

October, X, No. 4, pp. 121-154

44 Epidemic Puerperal Eclampsia? E. H. Miller, Liberty.
45 Alimentary Intoxication and Enteric Infection in Infancy. J. M. Brady, St. Louis.
46 Pathology and Course of Specific Urethritis in Male and their Bearing on Treatment. H. M. Young, St. Louis.
47 Diagnosis and Treatment of Diseases of Sigmoid Flexure of Colon. H. W. Soper, St. Louis.
48 Chronic Infectious Endocarditis, with Infarct of Lung, Spleen and Kidney. W. G. Parker, St. Louis.
49 *One Hundred Blood-Studies in Constipation. G. H. Hoxie, Kansas City.
50 Treatment of Diabetes Mellitus. E. B. Knerr, Kansas City.
51 Bacterin Treatment of Pustular Acne and Furunculosis. O. W. H. Mitchell, Columbia.

49. **Blood Studies in Constipation.**—Hoxie claims that intestinal stasis affects the blood-picture, producing a picture characterized by changed color reaction and an increase in the number of immature cell forms. One hundred cases reported on by him fall into three general groups: (1) those in which the lesion is in the upper bowel or stomach; (2) those showing colonic stasis, and (3) those in which the stasis has produced systemic effects. The tendency is toward a high total count. The percentage of the mononuclears is increased. Quite generally the granular cells stain heavily with the blue. The second group is characterized by a total count toward the upper limit of the normal. The color reaction differs quite distinctly from that of group one, for the granular cells are stained both by the red and the blue, thus giving a dirty mauve nuance. As soon as the stasis produces an irritation of the hematopoietic organs ("auto-intoxication"), the leukocyte count goes above the 10,000 mark and the number of immature forms rapidly increases (Arneth's "shift to the left"). It would seem as if the lymphadenoid tissue were inhibited so that the fully developed small lymphocytes were not being produced in sufficient numbers, nor in as relatively great numbers as the ripe granular cells.

New Mexico Medical Journal, Las Cruces

October, XI, No. 1, pp. 1-41

52 Some Race Observations from Epidemiologic Viewpoint. H. D. King, New Orleans.
53 Medical Legislation and Laity. L. S. Peters, Silver City.
54 Social Relations of Physicians and their Families. J. W. Kinsinger, Roswell.

New York Medical Journal

November 1, XCVIII, No. 18, pp. 845-896

55 Common Errors in Diagnosis and Prognosis of Gallstone Disease. B. T. Tilton, New York.
56 *Special Technic in Palpation. L. N. Boston, Philadelphia.
57 *Induced Pneumothorax. H. Schwatt, Edgewater, Colo.
58 Toxicity of Coal Tar Products. G. H. White, Baltimore.
59 Methods of Teaching Sex Hygiene. M. S. Macy, New York.
60 Clinical Study of Leukocytes. G. E. Henson, Jacksonville, Fla.
61 Neosalvarsan and Malaria: Personal Experience. J. A. Cutter, New York.
62 Plea for Oily Injections of Salvarsan H. G. Klotz, New York.
63 Treatment of Chronic Urethritis. S. Steiner, New York.
64 Intravenous Treatment of Rheumatic Fever. P. M. Patterson, New York.

56. **Special Technic in Palpation.**—The correct employment of palpation for the recognition of disease of the lung is believed by Boston to be among the most valuable of physical methods. Whenever it is desirous that the exact extension of a pulmonary lesion be ascertained, palpation serves this purpose equally well, and at times more advantageously than any other physical method. A useful practice is to employ only the index fingers of the two hands. The tip of the index finger receives sensations from an area of the chest approximately the size of a dime. But little additional time is necessary to traverse the entire chest-wall in this manner, and the results obtained are by far more valuable than those gained through the application of two or more fingers of the same hand to the surface of the chest. The index finger is decidedly more sensitive than are the other fingers.

After it has been found that a certain portion of the chest gives increased fremitus, the next step in the examination is to determine the exact extension of the lesion accountable for such fremitus. This Boston does by placing one index finger some distance beyond the area where increased fremitus is produced, and traveling slowly with this finger toward the lesion. Whenever the palpating finger reaches a point where the fremitus is increased, this point should be designated by the pen. This same procedure should be employed to ascertain the boundary of the area of abnormal fremitus on all sides. After the area of increased fremitus has thus been roughly outlined, place one index finger immediately inside the limiting line, and on the area where fremitus is increased, and at the same time place the index finger of the other hand but a short distance beyond the line. In this last position carry the two fingers in a steplike manner along the line designating the approximate limitation of the area of increased fremitus. The finger palpating over the lesion will be found to elicit increased vocal tactile fremitus, while the other index finger palpating immediately beyond the lesion detects a lesser degree and in many instances normal fremitus.

In palpating for the detection of expansible pulsation, the position of the operator's fingers must vary, depending on the location of the aneurysm. Apply the four fingers and the thumb to the pulsating mass in such a way that they more or less completely surround it. The sensation of true expansion with each heart-beat is conveyed to the operator's hand most distinctly. This method has been employed by Boston in distinguishing between aneurysm of the carotid regions and pulsations due to other causes. In studying aneurysm of the abdominal aorta and pulsations conveyed through some solid viscus or growth, this technic has proved of inestimable value.

In palpating for the edge of the liver, a procedure of real worth, Boston claims, the method is as follows: While the patient is standing place the fingers of the palpating hand at approximately the lower border of the liver; and direct the patient to raise the heel of the right foot so that he stands with but a small portion of his weight on the right toe. This position will be found to relax the abdominal wall over the right hemisphere. This method serves of equal value in palpation of the right kidney, and of the appendicular and pelvic regions. The same procedure is equally well adapted for the study of the left abdominal hemisphere.

57. **Induced Pneumothorax.**—Schwatt uses oxygen gas for the first, and frequently for the second injection. Under no circumstances is any gas allowed to flow in before there is a conclusive indication that the point of the needle is in a free pleural space. A distinctly negative reading with both inspiration and expiration, and a greater negative reading with inspiration than with expiration, are practically conclusive evidence that the needle has entered the pleural cavity. As a further indication the patient is instructed to take a moderately deep inspiration and to hold his breath at the end of it. If the manometer then remains stationary at a negative reading, one may be certain that the point of the needle has reached a free pleural space. Should the point of the needle be in the lung tissue, the column will drop from negative to zero while the patient is holding his breath. The insertion of the needle into the lung tissue is in itself devoid of any danger. It is Schwatt's practice to inject the gas in small quantities especially at the first operation. No more than from 50 to 100 c.c. of gas are injected without taking a manometer reading. It is Schwatt's opinion that many unfavorable results, both immediate and remote, are produced by injecting large amounts of gas. Except in cases in which it is sought to induce a pneumothorax for the purpose of stopping hemorrhage, nothing can be gained, and great damage may be done by injecting large amounts of gas. It is equally wrong to inject the gas under a pressure greater than that furnished by the injection bottles.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

October, XVII, No. 4, pp. 173-211

65 Salts of Emetine as Specific in Amebic Dysentery. W. Allen, Charlotte, N. C.
66 Relation of Serology and Cytology and Chemistry of Cerebrospinal Fluid to Mental Diseases. M. J. Karpas, New York.
67 Seasonal Variation of Disease. H. D. King, New Orleans.
68 Case of Pneumothorax. O. C. Brunk, Richmond, Va.
69 Urethral Calculi—Simple Method of Removal. L. T Price, Richmond, Va.
70 Case of Meningitis of Otitic Origin, Illustrating Insidious Latent Stage of Streptococcus Capsulatus Infection. S C. Bowen, Richmond, Va.

Ophthalmology, Seattle, Wash.

October, X, No. 1, pp. 1-201

71 Mirror Sight for Fire Arms. F. Schanz, Dresden, Germany.
72 Myopia-Etiology and Optical Management. C. W. Le Fever, Philadelphia.
73 Case of Infection Following Extraction of Cataract. H. W. Woodruff, Joliet, Ill.
74 Case of Dacryocystitis Presenting Several Complications, Including Orbital Abscess and Optic Neuritis. A. C Snell, Rochester, N. Y.

75 Paralysis of Ocular Muscles. G. A. Moleen, Denver.
76 Glaucomatous Vertigo. L. Dor, Lyons, France.
77 Sudden Total Blindness Following Iodin or Fracture. E. J. Bernstein, Kalamazoo, Mich.
78 Some Unusual Varieties of Rupture of Sclera. E. Fuchs, Vienna, Austria.
79 Specialist of Yesterday, To-Day and To-Morrow. H. Weir, Portland, Ore.
80 Chorioiditis, Etiology and Treatment. A. E. Davis, New York.
81 Probable Deleterious Effect of Salvarsan on Eye: Review of Literature and Report of Case. E. E. Maxey, Boise, Ida.
82 Visual Conservation in Young Children. F. A. Fenton, Portland, Ore.
83 Spontaneous Dislocation of Lenses, with Report of Case Exhibiting Pathologic Anatomy of Ligament of Zinn. H. V. Würdemann, Seattle, Wash.
84 Keratitis Neuroparalytica with Report of Case. G. E. Bruere, Portland, Ore.
85 Management of Psychoneurotic Eye Cases. F. B. Eaton, Portland, Ore.

Southern Medical Journal, Nashville, Tenn.

October 1, VI, No. 10, pp. 631-704

86 *Hydrothorax in Relation to Cardiorenal Lesions. F. A. Jones, Memphis, Tenn.
87 *Epitheliolysis against Carcinoma. A. E. Thayer, Mobile, Ala.
88 *Bacillary Dysentery in Infants. W. W. Harper, Selma, Ala.
89 Non-Medical Treatment of Chronic Constipation. F. W. Wilkerson, Montgomery, Ala.
90 Prognosis in Morphinism and Few Hints on Proper Home Care of These Patients by General Practitioner. C. B. Pearson, Baltimore.
91 Common Colon Bacillus. C. Thorington, Montgomery, Ala.
92 Home Treatment and Necessity for Early Diagnosis of Consumption. E. B. Hardin, Florence, Ala.
93 Ainhum as Seen on Canal Zone, with Report of Interesting Cases Occurring in One Family. H. Weinstein, New York.
94 Acute Pancreatitis. T. B. Hubbard, Montgomery, Ala.
95 Missed Abortion and Missed Labor, with Report of Cases of Missed Abortion. M. A. Shlenker, New Orleans.
96 Etiology and Pathology of Neoplasms of Breast. J. J. Cullings, Memphis, Tenn.
97 Tumors of Breast—Symptoms and Treatment. W. T. Black, Memphis, Tenn.
98 Traumatic Rupture of Kidney; Report of Three Cases: Two Nephrectomies. F. K. Boland, Atlanta, Ga.
99 Two Cases of Cerebral Injury without Fracture. O. S. McCown, Memphis, Tenn.
100 Acute Eczema Early in Course of Syphilis. H. H. Hazen, Washington, D. C.
101 Mastoiditis. S. Kirkpatrick, Selma, Ala.
102 Lingual Tonsil. L. DePoorter, New Orleans.
103 Albuminuric Retinitis. C. M. Sandusky, Jacksonville, Fla.
104 *Medical Profession and Medical Education. W. F. R. Phillips, Mobile, Ala.
105 Regulation and Sanitation of Prisons. W. H Oates, Montgomery, Ala.

86. Abstracted in The Journal, Dec. 7, p. 2090.

87. **Epitheliolysis Against Carcinoma.**—The cells of carcinoma have a strong tendency to degenerate soon after formation. They are, therefore, on a plane of less resistance than those of the normal type of epithelia, whether merely investing or more specialized; could this natural tendency to degeneration be hastened and intensified without injury to normal epithelia, or would it be necessary to make the lytic power strong enough to affect them also in order to entirely destroy the neoplastic cells, and how would this be recognized and controlled clinically? These are Thayer's premises. He found that repeated intraperitoneal injections of washed sterile epithelia, injected at five-day intervals, caused general destruction of practically all the epithelia of the recipient animal. The organs, sectioned in paraffin, showed degenerative changes in proportion to the frequency and amount of epithelia injected, and clinically the animals developed diarrhea and other symptoms corresponding to such lesions. So many experiments of this kind were performed and the result was so constant that the first part of the working hypothesis was regarded as established.

The next step was to try a similar procedure in a case of inoperable carcinoma. For this purpose several autolysates of epithelia were prepared, the washed material sterilized over chloroform and kept in the incubator at 37 C. for a couple of months, then filtered and tested for the presence of germs and ferments. When ready for use it has the following characters: It is of light straw color, of a specific gravity of 1.008-1.010, faintly alkaline; either dissolves out a trace of fat but causes no precipitate; nitric, picric and trichloroacetic acids give a fine precipitate; it contains no bile, no proteolytic ferments (others not tested for), but does contain 1/10 per cent. of urea and 0.19 per liter uric acid; before use it is tested by both aerobic and anerobic cultures and found to be sterile.

The clinical experiment was performed in a case of inoperable carcinoma of the cervix. July 25, 2 c.c. of the filtered lysate, diluted with 10 c.c. sterile physiologic salt solution, were injected under the skin of the right side, between the ribs and the iliac crest. By the 28th, pain was a little less; this symptom had been continuous and unrelieved by the operation. On this date 5 c.c., well diluted as before, were injected. Since she had had no reaction beyond a half a degree of temperature, it was thought safe to double the dose, the point of injection being the left flank. August 5, 10 c.c. were given, August 8, 10 c.c., and August 16, 12 c.c. The site of injection has at no time shown any redness, induration or tenderness. At the latter date the patient's cachexia had practically disappeared, her vaginal discharge had nearly ceased and had lost the foul odor entirely, the lymph-nodes of the groins were barely palpable, the pain in the abdomen had ceased and but little was left in the right thigh, and in the week of August 2 to 8 she had gained 2½ pounds. The patient's condition, August 20, is still satisfactory.

88 and 104. Abstracted in The Journal, Dec. 3, p. 1389.

Surgery, Gynecology and Obstetrics, Chicago

October, XVII, No. 4, pp. 398-522

106 *Congenital Atresia of Esophagus; Operation Designed for Its Cure. H. M. Richter, Chicago.
107 *Rôle of Glands of Internal Secretion in Genesis of Fibroma Molluscum Gravidarum. S. M. Brickner, New York.
108 Roentgenoscopy of Habitual Constipation. E. H. Skinner, Kansas City.
109 Value of Roentgenoscopy in Study of Chronic Appendicitis and Inflammatory Conditions. Both Congenital and Acquired, about Cecum and Terminal Ileum. A. W. George and I. Gerber, Boston.
110 Pregnancy in Rudimentary Cornu of Uterus Unicornis and Report of Case with Full Term Fetus. E. P. Quain, Bismarck, N. D.
111 Vital Statistics of Prostatectomy. J. B. Squier, New York.
112 *Use of Tuberculin in Treatment of Surgical Tuberculosis, with Clinical Reports and Late Results. C. G. Swenson, Chicago.
113 Histogenesis of Cancer of Breast and Its Clinical Significance. W. C. MacCarty, Rochester, Minn.
114 *Simple Method of Excluding Pylorus. W. Bartlett, St. Louis.
115 Infantile Type of Uterus with Dysmenorrhea. T. J. Watkins, Chicago.
116 Malignant Hypernephroma of Kidney, Its Clinical Course and Diagnosis, with Description of Author's Method of Radical Operative Cure. A. A. Berg, New York.
117 Blood-Pressure during Pregnancy. F. W. Lynch, Chicago.
118 Pathogenesis of Congenital Cystic Disease of Parenchymatous Organs. A. E. Hertzler, Kansas City.
119 Cancer Situation. W. P. Carr, Washington, D. C.
120 Intestinal Anastomosis; with Report of Aseptic Basting Stitch Method. H. H. Kerr, Washington, D. C.
121 Harelip, with Illustrative Cases. R. C. Turck, Jacksonville, Fla.
122 *Modern Extraperitoneal Cesarean Section with Description of Best Technic for Its Performance. B. C. Hirst, Philadelphia.
123 Technic of Insertion of Intratracheal Insufflation Tubes. C. Jackson, Pittsburgh.
124 Ill Effects from Ileosigmoidostomy. A. Werelius, Chicago.
125 *Two Cases of Obstruction of Intestine from Unusual Causes. C. U. Collins, Peoria, Ill.
126 Modified "Figure-of-Eight" Suture. T. J. Watkins, Chicago.

106. **Congenital Atresia of Esophagus.**—Richter's plan of operation consists of closure of gullet at tracheal junction by transthoracic route and gastrostomy.

107. **Fibroma Molluscum Gravidarum.**—Brickner adds an observation, which, as far as an exhaustive study of the literature is concerned, is unique. The condition is a longitudinal pigmentation of the nail of the index finger of the right hand and of the middle finger of the left hand. The patient was a primigravida. During the later months of her pregnancy she noticed this discoloration of the nails. It was at first of a light brown but became deeper in color as the pregnancy advanced. There was no unusual pigmentation of any of the rest of the body, the linea alba and the areolae being no more deeply pigmented than usual. Her child is now 15 months of age. The color has gradually disappeared from the nails, but the pigment is still present. It is three-sixteenths of an inch in width and is at present of a light yellowish brown color.

112. **Tuberculin in Surgical Tuberculosis.**—In Swenson's experience, tuberculous gland infections that have not entered the stage of caseous degeneration have yielded to tuberculin treatment. He says that almost all local tuberculosis may be cured under persistent, skilful, surgical treatment, assisted by tuberculin injections properly given. Tuberculin injections may be safely given every tenth or twelfth day without opsonic work; of course, it is preferred that one be guided by occasional blood-tests. All tuberculin injections should be given by a reliable, clean person, and the best place for the injections is on the anterior part of the chest. Duration of tuberculin treatment; one half to two years. All hygienic treatment, such as fresh air, good food, and attention to digestive organs, is of vital importance. For tuberculous sinuses extending into the urinary bladder the bismuth paste injections are usually contra-indicated.

114. **Simple Method of Excluding Pylorus.**—A metal spatula is introduced through a slit in the gastrocolic ligament to protect the structures behind the stomach, then a metal skewer is thrust directly through both walls of the stomach into the lesser peritoneal cavity and out again so as to encompass about one-half the distance between the two curvatures. A clamp is placed behind the skewer and several mattress sutures introduced between the skewer and clamp; these embrace the whole thickness of both walls of the stomach. The skewer is cut out with a sharp knife and the mattress sutures tied before the clamp is removed. A hemostatic running stitch of silk or linen unites the four exposed cut edges (it may be inserted before the clamp is removed). The ridge of tissue formed by the mattress sutures is inverted with a continuous Lembert row. None of the ten dogs on which Bartlett used this method died from the effects of the operation. The excluded portion was pale and strikingly atrophic at autopsy in each case, while roentgenoscopy showed the obstruction to be complete and the gastro-enterostomy patent in the three which were examined months after operation.

122. **Modern Extraperitoneal Cesarean Section.**—Hirst's experience with extraperitoneal cesarean section comprises nine operations in the last eleven months without maternal or fetal mortality. Two of the patients were presumably infected beforehand and one had placenta praevia. The first three operations were done by Frank and Bumm's technic; the next three by Sellheim's; the last three by Veit and Fromme technic with a slight original modification which Hirst believes decidedly improves the operation. It consists in suturing the peritoneal flaps before opening the uterus. The lower abdomen is incised down to the symphysis pubis; the perietal peritoneum is opened in the usual manner; the lower visceral peritoneum on the lower uterine segment is opened in the same way. The two peritoneal flaps are sewed together on each side, thus closing the peritoneal cavity; the lower uterine segment is incised from above downward, as low as necessary to deliver the child, the bladder being protected by a retractor over the symphysis; a forceps is applied to the child's head; the placenta and membranes are removed; the uterine wound is united by a two-tier catgut stitch; the double peritoneal flaps are brought together in the middle line over the uterine wound by two or three interrupted stitches, and the abdominal wound is closed in the usual way.

125. **Obstruction of the Intestine.**—One case cited by Collins was due to strangulation caused by a fibrous band across a hernial sac; the other from intussusception caured by a lipoma of the cecum.

Tennessee State Medical Association Journal, Nashville

October, VI, No. 6, pp. 209-252

127 Clinical Data on Renal Calculus. W. F. Braasch, Rochester, Minn.
128 *Three Cases of Prolonged General Suppurative Peritonitis Pointing at Umbilicus, Incision and Cure. W. D. Haggard, Nashville.
129 *Submucous Resection of Nasal Septum. H. Wood, Nashville.
130 *Intracranial Hemorrhage. R. Mann, Memphis.
131 *Paroxysmal Tachycardia. F. J. Runyon, Clarksville.

128 to 131. Abstracted in THE JOURNAL, April 19, p. 1248.

Texas State Journal of Medicine, Fort Worth

October, IX, No. 6, pp. 275-304

132 Safe and Convenient Method of Giving Uniform Vapor of Anesthetic. W. S. Carter, Galveston.
133 Practical Application of Intratracheal Anesthesia. A. O. Singleton, Galveston.
134 Present Status of Serum Therapy. S. D. Swope, Deming, N. M.
135 Cell Inclusion Bodies Found in Circulating Blood and Lesions of Syphilis. J. E. Robinson, Temple.
136 Laboratory Diagnosis of Syphilis. M. W. Colgin, Waco.
137 Relation of General Practitioner to Public Health. J. E. DHdy, Lampasas.
138 Sporotrichosis. E. F. Cooke, Houston.
139 Research Work on Pellagra, with Isolation of Possible Causative Factor. D. Meredith, Wichita Falls.
140 Laboratory and Surgeon. G. T. Thomas, Amarillo.

Vermont Medical Monthly, Burlington

October, XIX, No. 10, pp. 235-260

141 One Hundred Years of Medicine in Vermont. B. H. Stone, Burlington.
142 Acute Inflammation of Middle Ear. L. A. Newcomb, Montpelier.
143 Appendicitis. G. S. Foster, Manchester, N. H.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 18, II, No. 2755, pp. 973-1048

1 Investigation of Higher Nervous Functions. I. Pawlow.
2 "Struma" an Important Factor in Disease of Eyes. T. H. Butler.
3 *Rigidity of Calcified Arteries. A. H. MacCordick.
4 Second Case of Double Loop Hernia. J. A. C. Macewen.
5 Certain Non-Official Fats as Ointment Bases. R. B. Wild.
6 Best Methods of Dealing with Malpositions of Uterus. M. Scharlieb, H. Schlimpert and H. Corby.
7 Affections of Urinary Tract Complicating Pregnancy. H. Croom.
8 Plea for Early Operation in Cases of Uterine Fibroids. A. E. Giles.
9 General Peritonitis due to Vermiform Appendix and Complicating Pregnancy. T. H. Ionides.
10 Clinical Travel. R. L. Dickinson.
11 Significance of Wassermann Reaction in Gynecologic Diagnosis, with Special Reference to Uterine Hemorrhage. A. L. McIlroy, H. F. Watson and J. H. McIlroy.
12 Abderhalden's Serum Reaction of Pregnancy. H. Schlimpert.
13 Treatment of Cutaneous Tuberculosis by Means of Copper. G. N. Meachen.
14 *Circulatory Disorders in Relation to Alopecia Areata and Other Forms of Baldness. D. Walsh.
15 Treatment of Skin Affections by Solid Carbon Dioxid. J. L. Bunch.
16 Unusual Case of Acne Necrotica. F. Gardiner.
17 Ointments. H. Davis.
18 Treatment of Chronic Ulcer of Leg. A. W. Williams.
19 Use, Action and Dosage of Roentgen Rays in Psoriasis and Other Skin Diseases. S. E. Dore.
20 Treatment of Common Skin Diseases at Harrogate Spa. L. J. Hobson.

3. **Rigidity of Calcified Arteries.**—It is held by MacCordick that during life the calcareous matter in the arterial wall is not present in the form of rigid plates. It is there, but in the state that may be compared with unset mortar. It is generally accepted by chemists that the process of setting of mortar is one of conversion of calcium hydroxid into calcium carbonate by the absorption of carbon dioxid from the air. Kept under an alkaline solution, or kept in bulk away from the air that contains carbon dioxid, mortar remains unset. A mixture of calcium carbonate and calcium phosphate remains soft so long as it is in an alkaline medium: placed in an acid solution it sets. Also the more strongly acid the medium the faster it sets. The reaction of the tissues and body fluids during life is alkaline, but becomes acid shortly after death. It is deserving of note particularly, in the second place, in connection with arterial calcification, that the gas which after death replaces the blood within the arteries is largely composed of carbon dioxid. Without doubt when there are large areas of necrosis appearing in the tissues, there the production of acid is the cause of the setting of calcareous matter. For instance, it is the experience of the gynecologist that a calcified fibroid of the uterus may be found of stony hardness even while in the body; so also MacCordick's experience is that in a case of senile gangrene the arteries of the necrosed or gangrenous area are of stony hard-

ness, whereas the same arteries higher in their course, where the circulation is still maintained, are soft and pliable and can be ligatured with ease. In short, he says, in arteries provided with an adequate circulation the calcareous matter, whether it be in the intima or the media, remains unset. It is easy, then, to understand why, after handling pipe-stem radials, there is no thrombosis and gangrene, easy to understand why rigid and tortuous splenic and other mesenteric arteries in the aged arteriosclerotic do not undergo traumatic rupture. During life they are not rigid. It is easy also to understand the occurrence of extensive so-called atheromatous ulceration of the aorta without thrombosis, commonly occurring during life. Those ulcers, in short, and the saucer-like plaques with surrounding rupture of the endothelium are postmortem productions. The calcified areas become in the intima set and rigid before the muscular contraction of the aorta gives way and the tube undergoes dilatation. The result is that a tension on the endothelium at the edges of the plaque induces rupture of this lining.

14. **Circulatory Disorders and Alopecia Areata.**—Thirty-six cases were examined by Walsh. Of these 23 were in males and 13 in females; 14 were under 20 years of age, and 6 were 50 or over. Of the 36 patients no less than 24 had valvular murmurs and other evidence of cardiac disease, while 3 others showed general arteriosclerosis (one advanced atheroma). Of the remaining 7, one had exophthalmic goiter; one chorea and irregular heart action; one irregular action from tea and another from tobacco poisoning; one had a feeble circulation; while in three only could no marked abnormal circulatory condition be detected. Of the 24 valvular conditions, 18 showed mitral regurgitation, and 2 of them aortic mischief as well; 5 were direct aortic, 2 of them direct and regurgitant; and one showed multiple murmurs in a terminal stage of cardiac disease. Walsh says that it may be objected that in cases of alopecia following mental shock the cause is evidently neurotrophic, and that cardiovascular disturbance does not enter into the question. The answer is that shock does not produce alopecia areata in all individuals but only in those who have a certain predisposition, which may be either cardiovascular, or due to a temperament in which the heart is peculiarly liable to be disturbed. Some years ago Walsh described a type of individuals characterized by a congenital high forehead and abnormal thyroid gland, in whom shock was apt to be followed by a curious symptom-complex in which were to be found tremors, nervousness, depression, tachycardia, palpitation, headaches, exophthalmos, diffuse and patchy baldness, and so on. There was a special tendency to exophthalmic goiter and myxedema, the two being sometimes associated. This temperament, with its consequences, was often met with among poorly-fed children in an outpatient department. So far as myxedema is concerned, Walsh cannot recall a single case in which the patient had not a congenital high forehead. Where shock is followed by alopecia areata the same condition, in his experience, is almost always present. The associated instability of the heart condition in such cases is shown by the quick and variable pulse, the palpitation, and sometimes by the physical signs of a dilated heart. Walsh's main conclusions are as follows: The abnormal loss of hair, whether acute or chronic, diffuse or patchy, is in the majority of cases associated with some serious cardiovascular defect, which constitutes an essential predisposing cause. Given this predisposing cause the exciting cause may be one of various agencies, acting either directly or indirectly. Alopecia areata is simply a localized form of diffuse baldness, and both are probably due in most cases to exciting traumatism and predisposing cardiovascular defect. The predisposing cardiovascular condition may be (a) cardiac valvular, myocardial, or functional; (b) vascular, as arteriosclerosis; (c) neurovascular, as exophthalmic goiter or Raynaud's disease. In some cases the skin sign, in the form of alopecia or eruption, may register a failure of compensation. For instance, when an attack of influenza breaks down the compensation of a preexisting valvular lesion, an acute shedding of hair follows. From a pathologic point of view the predisposing part played in these cardiovascular cases depends on a disturbed balance of the surface circulation and acts in a twofold manner: (1) by diminishing the natural local defenses of the skin circulation against the invasion of bacteria from without; (2) by predisposing to the formation of clots, with subsequent damage to nutrition and shrinkage of capillaries (fibrosis); (3) by inducing lymph stasis.

Dublin Journal of Medical Science

October, III, No. 502, pp. 241-312

21 Stomach Cases. T. G. Moorhead.
22 Case of Puncture Wound over Right Clavicle, Causing Loss of Pulsation in Arteries of Arm. H. Stokes.
23 Every-Day Application of Certain Preparations of Spleen, Pancreas, etc. G. W. Carnrick.

Edinburgh Medical Journal

October, XI, No. 4, pp. 289-384

24 Duration of Interval between Insemination and Parturition in Certain Mammals as Studied in Biometric Curves, with Special Reference to Calculation of Onset of Labor in Human Pregnancy. D. B. Hart.
25 Postgraduate Instruction of Tuberculosis Medical Officers. R. W. Philip.
26 Some Cases of Eclampsia Treated by Veratrone. F. W. N. Haultain.
27 Can Urinary Bladder Empty Itself? A. G. Miller.
28 Work of Clinical Medicine Research Laboratory, Royal Infirmary, Edinburgh. H. Rainy.
29 Incorporation of Surgeons of Edinburgh: Their Early Association with Royal Infirmary. C. H. Creswell.

Glasgow Medical Journal

October, LXXX, No. 4, pp. 241-319

30 Tuberculosis: Renal and Vesical Cystoscopic Appearances in Early Stages Demonstrated by Projectoscope. D. Newman.
31 Obstruction of Pulmonary Artery due to Carcinoma. A. W. Harrington.
32 Serotherapy of Cerebrospinal Meningitis. W. C. Gunn.
33 A Glasgow Physician. G. McIntyre.

Lancet, London

October 18, No. 2, pp. 1103-1166

34 Some Applications of Antenatal Eugenics in Heredity. D. B. Hart.
35 Cerebrospinal Fluid in Health and Disease. D. Ferrier.
36 *Relief of Pain of Laryngeal Tuberculosis. E. D. Davis.
37 *Hereditary Optic Neuritis: Eleven Cases in Three Generations. A. S. Worton.
38 Case of Pellagra. E. M. Johnstone.
39 Two Cases of Cervical Rib with Vascular Symptoms. E. D. Telford.
40 *Treatment of Ankylostomiasis. R. D. Keith.
41 Treatment of Infections by Means of Fixation Abscesses. deLostalot.
42 Hemiplegia Following Syphilis. M. Mackinnon.

36. **Relief of Pain of Laryngeal Tuberculosis.**—In twelve selected cases of laryngeal tuberculosis, Davis injected a solution of 2 grains of eucain in 1 ounce of 80 per cent. alcohol to relieve the dysphagia. The method of injection adopted is briefly as follows: The patient is in the prone position with the head and neck slightly extended and the chin turned away from the point of injection. To avoid sepsis the skin in the region of the nerve is painted with iodin. The larynx is pressed out of the midline by the thumb and made to project on the side about to be injected. The nerve is marked out by the nail of the index finger, which is placed between the hyoid bone and the thyroid cartilage and immediately above the superior thyroid tubercle where a tender spot is found. The blunt needle of Schlosser's syringe is now pushed in with a jerk at right angles to the surface and at the middle of the finger-nail to a depth of 1½ cm., i. e., to the mark on the needle. The needle is carefully moved so as to seek the spot at which the patient complains of pain in the ear. A few drops of the solution of alcohol are injected, and if there is a violent fit of coughing it indicates that the needle has possibly entered the pharynx and is too deep, but this very rarely happens. Finally, the slightly warmed alcoholic solution is injected until the pain in the ear has ceased. About 1 to 2 c.c. is generally sufficient. Of the twelve cases mentioned not one showed any signs of hemorrhage, injury to the surrounding structures, or other disturbing results—in fact, the proceeding is not much more difficult than the usual hypodermic injection. With the laryngoscope the side of the larynx injected was found to be slightly paler, and appeared to be less sensitive when touched with a laryngeal probe. This local anesthesia is probably the cause of the immediate

relief experienced in most cases. In two cases both nerves were injected at the same sitting without any untoward symptoms and without the regurgitation of fluid into the larynx during swallowing, but as a general rule, it is wiser to allow a few days to elapse before the injection of the second nerve. Of the twelve cases two were unsuccessful, owing to ulceration of the pharynx in one and extensive disease in the other. One patient obtained complete freedom of pain for one month and put on 3½ pounds in weight in a week. This patient died a few months later from diffuse pulmonary tuberculosis, and microscopic sections were made of the internal laryngeal nerves and compared with a section of the same nerves of a healthy subject who had been killed by an accident. The nerve which had been injected twice showed increased fibrous tissue and numerous spaces within the bundles of the nerve fibers.

37. **Hereditary Optic Neuritis.**—The eleven cases cited by Worton occurred in one family in three generations. All the patients were males. The age incidence varied from 9 to 32 years. Of the four cases personally examined two had regained practically normal vision but leaving some deficiency in the light sense, especially in one case; one patient is still under observation; and in one vision is reduced to hand movements close to the eyes. Of the remaining six living patients nothing is known of the present visual condition of two, one is stated to be blind, and the sight of one bad, while improvement has occurred in two cases. It is noteworthy that in all the cases in which visual power was completely regained or had partially recovered, the age incidence of the disease was below 20 years. Worton suggests that this would seem to have a bearing on prognosis.

40. **Treatment of Ankylostomiasis.**—A point of great importance in the successful treatment of ankylostomiasis in Keith's opinion, is the percentage of hemoglobin in the blood. If the percentage of hemoglobin is in the neighborhood of 60, he says it may be reckoned that with suitable treatment the ova will disappear in the course of a few days. With a percentage of between 45 and 55, treatment will be more difficult. Anything below 40 per cent. will indicate that great patience will have to be exercised before recovery can take place; it will not be a question of weeks but of months, and this is certainly so when the percentage of hemoglobin is as low as 16 to 20. The general condition improves with rest and diet. As a rule, the edema soon disappears and the patient feels better, but the ova, though they decrease in number rather quickly at first and then more gradually, do not disappear entirely for months, while the hemoglobin index remains persistently about its original level. From recent results Keith has come to the conclusion that betanaphthol in 30-grain doses, the first thing every morning, is likely to prove more effectual than eucalyptus or thymol. The necessity for starving patients while the treatment is being carried out is by no means evident; indeed, in bad cases it may even be harmful. More especially is it unnecessary if the drug is given the first thing in the morning. There will not be much food found in the upper part of the small intestine five or six hours after an ordinary meal, so that if the drug be given the first thing in the morning there is no necessity for starvation. Energetic treatment is needed, and Keith has never seen any ill-effects follow from such measures.

Practitioner, London

October, XCI, No. 4, pp. 445-588

43 *Researches on Pathogenesis of Cancer. De Keating-Hart.
44 *Abnormal Sensations in Pharynx. T. B. Layton.
45 Diagnosis and Treatment of Various Conditions Met with in Nasopharynx. N. Patterson.
46 Functional Tests of Labyrinth and Their Value in Diagnosis. A. Dighton.
47 *Nasal Catarrh—Acute and Chronic. W. Wilson.
48 Recent Work in Ophthalmology. L. V. Cargill.
49 Diagnosis and Treatment of Some Common Eye Diseases. E. A. Dorrell.
50 Recent Work in Children's Diseases. H. Thursfield.
51 Premature Loss of Hair and Hygiene of Scalp. D. Freshwater.
52 Some Common Types of Alopecia. D. J. Guthrie.
53 Some Conditions Which Mimic Acute Abdomen. E. C. Bevers.
54 Chronic Appendicitis. H. Stedman.
55 Anesthesia. G. A. H. Barton.
56 New Ovum and Its Miracidium. J. A. Kay.

43. **Pathogenesis of Cancer.**—The parasitic theory of cancer, De Keating-Hart says, is given up, not as being impossible, but because, according to the present state of knowledge, it is unlikely and irrational; in microbial diseases, the injured cell leaves the virus intact, and one would, therefore, have to imagine a parasitism contrary to the histologic laws of higher organisms. The absolute similarity is recognized of the conditions which govern the grafting of normal and cancerous cells, and determine failure or success. It has been shown that ectopy, and the metastatic capability of cancerous cells are the consequences of their acquired properties, and of their cellular construction. The irritative theory is accepted as being the only one which embraces all the known facts in cancerous etiology. The biologic conditions, created by irritation in the cells submitted to it, have been studied. The reproductive power of cancerous cells has been proved, and their nutritive requirements demonstrated. De Keating-Hart believes that cancer is produced by cells overcultivated for a long time in the irritated zones of the organism; they are like hothouse plants, which, as a result of slow and prolonged increase of heat and food, acquire, after a variable period, the hereditary characters of overproduction and overfeeding which distinguish them. Ectopy, the invasion of healthy peripheral tissues, is accounted for by the same intensity of multiplication, which breaks down the normal barriers by mechanical pressure. Metastatic effects are due, at the same time, to the increased vitality of the cells easily carried away in the lymph and blood streams, owing to the want of intercellular cohesion peculiar to cancerous formation.

44. **Abnormal Sensations in Pharynx.**—Abnormal sensations in the pharynx, Layton states, are exactly the same as abnormal sensations in the skin, but are brought more to our notice because we are unconscious of the normal sensations there. They may be due to a foreign body, a small local lesion, or an insignificant local lesion associated with a slight general lowering of the resistance of the body. All may lead on to serious disease, and so are well worth attention. Treatment consists in no panacea, but in a careful search for the primary lesion, and a well-balanced consideration of everything concerning the patient's health.

47. **Nasal Catarrh.**—The treatment Wilson has found most useful in cutting short an attack of acute coryza is the following: 1. A single pill of morphin gr. 1/6 made up with a little capsicum and ol. menth. pip. A small dose of nitroglycerin also is advantageous. 2. In two hours 10 grains of aspirin. 3. A hot bath. The following morning, a purgative dose of magnesium sulphate is given to clear away the intestinal contents held back by the morphin. Neither a nasal douche nor a spray should be employed, but an irritant antiseptic ointment containing menthol and salicylic acid, will best fulfil the purpose. A small portion of such an ointment is inserted well up into each nostril, where, if sniffed back, it gives rise to considerable smarting and secretion; it should be applied frequently despite the pain. It will be succeeded by a period of relief, and then the nose can be sprayed repeatedly with a sedative preparation. Despite the pain caused by the menthol-salicylic preparation, no cocain should be employed at all, as it paralyzes the ciliated epithelium and opens the way for fresh infection.

Presse Médicale, Paris

October 4, XXI, No. 81, pp. 801-816

15 Cultivation of the Syphilis Spirochete. (Etat actuel de la culture du tréponeme pâle.) H. Noguchi (New York).
16 General Paralysis and Syphilis. H. Noguchi.
17 *Morbid Functioning of the Adrenals. (Relations entre les syndromes surrénaux et les troubles des fonctions surrénales.) L. Bernard.

October 8, No. 82, pp. 817-824

18 The Interpterygoid Fascia. A. Hovelacque and M. Virenque.

17. **The Adrenal Syndromes.**—Bernard's name is connected with the history of the pathology of the adrenals, and he here compares the histologic findings with the clinical manifestations of excessive or deficient functioning of the adrenals. He calls the syndromes respectively hyperepinephria and hypo-

epinephria; the former is characterized by abnormally high arterial blood-pressure, atheroma of the aorta and glycosuria, although each of these may have causes apart from adrenal functioning. Hypoepinephria is characterized by weakness of the muscles and abnormally low blood-pressure; the latter entails various circulatory disturbances, tachycardia, arhythmia, tendency to collapse and syncope and peripheral vasomotor disturbances. In addition to these, the hypoepinephria may entail digestive disturbances, especially vomiting, and nervous disturbances, including mydriasis, headache, delirium, convulsions or apoplectiform attacks and coma, or even sudden death in some cases. This insufficiency may be acute, subacute or chronic; Bernard and Sergent have encountered cases in which the clinical picture seemed to be that of acute poisoning or acute peritonitis, or an attack of cholera or meningitis. Symptoms indicating deficient adrenal functioning are common in scarlet and typhoid fever and in chloroform poisoning. Ferranini regards this hypoepinephria as an important factor in a constitutional lack of tone in the blood-vessels; Raymond in the Erb-Goldflam syndrome, and others have incriminated it in certain forms of neurasthenia and amyotrophia. Bernard thinks that abnormal pigmentation is due to nervous influences; when the pigmentation becomes accompanied by symptoms of hypoepinephria the syndrome of Addison's disease results. Understanding of the three great adrenal syndromes is necessary for rational treatment, especially organotherapy.

Revue de Gynécologie, Paris

August, XXI, No. 2, pp. 97-176

19 *Importance of Cystoscopy with Cancer of the Uterus. G. Luys.
20 Connection between Inflammation in Meckel's Diverticulum and Obstruction of the Intestine. F. Bienvenue.
21 Obstetric Phantom. Jacobs.

September, No. 3, pp. 177-256

22 Sarcoma of Labia Major. A. Martin.
23 Spinal Anesthesia Combined with Brief Ethyl-Chlorid Administration. M. Chaput.
24 *Plastic Adhesive Peritonitis of the Right Iliac Fossa. (Péri-iléocolite membraneuse.) C. Lenormant and S. Oberlin.
25 *Chronic Obstipation; Thirty-Three Operative Cases. (Traitement de la stase intestinale chronique.) V. Pauchet.

19. **Cystoscopy with Uterine Cancer.**—Luys gives an illustrated description of his cystoscopes for women, and emphasizes the indispensable importance of cystoscopy not only for the prognosis but as a guide to operative technic, etc. If the bladder looks normal, or if there is merely diffuse redness or slight suffusion with blood, the cancer in the uterus may be regarded as readily removable. If the bladder is a little pathologic and there are slight ulcerations in the mucosa and the walls look abnormally vascular, the surgeon is warned that his laparotomy will be long and difficult. On the other hand, invasion of the bladder by the cancer or perforation of the bladder wall—these show that the abdominal hysterectomy will have to be supplemented by operations on the bladder. Any attempt at an operation is contra-indicated by the discovery that the ureters are impermeable from compression by the uterine cancer or if they are buried out of sight by edema. A colored plate shows the various types of findings.

24. **Adhesive Plastic Peritonitis.**—The peri-ileocolitis was in the right iliac fossa in the nine cases described; conditions were corrected in the simplest way, detaching adhesions, removing the appendix and taking up a fold in the cecum or fastening it in place. The outcome was excellent in all.

25. **Operative Treatment of Obstipation.**—Pauchet presents in sixteen illustrations the various mechanical conditions which may be responsible for chronic stasis of the bowel contents. The stasis in turn is the result of atony of the intestines and abdominal muscles. This permits the viscera to slide downward and the bowels to kink, with putrefaction of the bowel content arrested above the kink, and consecutive toxemia. There may be diarrhea or constipation or both may alternate, and there will be digestive toxic and trophic symptoms. Persons thus affected become constitutionally inferior, both physically, socially and mentally. In the thirty-three cases in which entero-anastomosis was done, one patient died, a number were completely cured and the others materially improved. The three cases in which the entire colon was resected did not turn out well, and the results of severing adhesions were variable and inconstant. The operation in all such cases is only part of the treatment needed; passive and active exercise, physiotherapy and psychotherapy are generally indispensable besides.

Revue Mens. de Gynécologie, d'Obstétrique et de Pédiatrie, Paris

September, VIII, No. 9, pp. 509-576

26 Epinephrin in Management of Labor. (Opothérapie surrénale et contraction utérine du travail; ligne blanche chez la femme enceinte.) G. Baux and E. Roques.
27 Infant's Persistent Crying as Sign of Syphilis. (Valeur diagnostique du signe de Sisto dans l'hérédo-syphilis infantile.) C. Ferreira.
28 Indications and Contra-Indications for Radiotherapy with Fibromas and Hemorrhages in the Menopause. A. Laquerrière.

Berliner klinische Wochenschrift

October 6, L, No. 40, pp. 1837-1880

29 *Medical Ethics. H. Schmidt.
30 Military Hospitals. (Grundsätze über den Bau und Betrieb der Militärlazarette im Vergleich mit denen der Zivilkrankenhäuser.) F. Paalzow.
31 Training of Medical Men for the Army. (Die Aus- und Fortbildung der Sanitätsoffiziere.) R. Hamann.
32 Nursing in the Military Service. (Einiges über Heer und freiwillige Krankenpflege.) G. F. W. Schultzen.
33 *"Physiologic" Albuminuria from the Military Standpoint. H. W. v. Hecker.
34 Disease of the Upper Air Passages and Ear as Affecting Military Efficiency. Hölscher.
35 Paratyphoid Epidemic in Regiment. R. Otto.
36 Cultivation of the Parasite of Variola. (Reinkultur des Pockenerregers.) W. Fornet.
37 Prophylaxis of Epidemic Disease in War. (Die Seuchengefahr im Kriege.) W. Landgraf.
38 Skull Wounds on the Battle Field. (Behandlung der Schädelschussverletzungen bei den mobilen Sanitätsformationen.) F. Lotsch.

29. **Medical Ethics.**—Schmidt expatiates on the necessity for giving medical students some training in deciding puzzling ethical questions. Experience will in time teach them what to do, but until they have acquired this experience, they need advice, and this should be incorporated in the medical course. For instance, he says, what will a newly fledged physician regard as the right course when a housemaid applies to him with florid syphilis and the family in which she works are his clients? Does he know the personal dangers threatening him with female patients and nurses, the danger in any measures imposed without the consent of the patient? Is he aware of the responsibility involved in making out medical certificates; whom should he inform, the patient or others, when he realizes that death is impending, or should he refrain from distressing the family; to what extent is he bound to give medical services to other members of the profession and their families, and when or how can he terminate such services once begun; how can he arrange for a substitute when he is temporarily prevented from practicing; how about fees, what should he charge and how should he collect? Is he thoroughly posted as to the advantages and privileges of joining medical organizations? One hour a week during a term late in the medical course would plant seed from which the young physician might reap later a most profitable harvest, while for the lack of such advice he might have to suffer long and seriously, perhaps blight his whole career.

33. **Physiologic Albuminuria.**—This entire number of the *Wochenschrift* is devoted to articles written from the standpoint of medical army officers, in tribute to the sixtieth birthday of the surgeon-general. Hecker states that he found albumin in the urine in 4 per cent. of 8,848 young men examined for the military service in 1909-1911. In twenty-eight of the recruits the albumin had disappeared on repetition of the test, and all in this group of "physiologic" albuminuria have kept in persisting good health since. He discusses other army experiences in this line and life insurance statistics. They all tend to demonstrate the harmlessness of a transient or habitual albuminuria in persons otherwise apparently in normal health and without a history of kidney or constitutional trouble. By accepting recruits with "physiologic" albuminuria, he adds, the German army gets numbers of sound soldiers who otherwise would have to be rejected.

With the present peace footing of 661,478 men, the question involves 26,500 men, accepting 4 per cent. as the average with albuminuria among the young men enrolled for military service. The military training generally has a favorable action on the tendency to albuminuria in these cases.

Deutsches Archiv für klinische Medizin, Leipsic

CXII, Nos. 1-2, pp. 1-207. Last indexed Oct. 4, p. 1333

39 Experimental Study of Pancreatic Secretion with Disturbances in Stomach Secretion. E. Schlagintweit.
40 *Phagocytosis in Acute Infectious Diseases. H. S. Hieber.
41 *The Pulse during Sleep. F. Klewitz.
42 Comparison of the Leukocyte Count in the Normal and the Tuberculous at High Altitudes. G. Baer and R. Engelsmann.
43 Significance of Megalocyte Production. O. Brosamlen.
44 Blood-Count during Remissions in Pernicious Anemia. O. Brosamlen.
45 Causes of Arhythmia. (Zur Kenntnis der Ueberleitungsstörungen des Herzens.) O. Roth.
46 Simplified and Improved Sphygmobolometer. H. Sahli.
47 Measurement of the Energy of the Pulse with Christen's Energometer. E. Drouven and E. A. Dunkan.
48 Origin of Flimmer Scotoma. W. Filehne.

40. **Phagocytosis in Acute Infectious Diseases.**—Histories of twelve cases of acute infection are given with the conclusions drawn from examination of the phagocytic activity of the blood. Hieber found that with the rise of the fever the phagocytic power of the blood is decreased. A marked rise in the phagocytic curve, called the phagocytic crisis, denotes a favorable prognosis. If the phagocytic crisis does not appear, the prognosis is bad. When convalescence begins, the phagocytic activity of the blood generally returns to normal. The phagocytic power of the blood does not run parallel with the leukocyte count.

41. **The Pulse during Sleep.**—From a study of the pulse in seventy persons Klewitz finds that for normal hearts the average rate during sleep is 59.3, and during waking hours 74.1, a decrease of 19.9 during slumber. There is less variation during sleeping than waking hours. With absolute rest at night, even if not asleep, the pulse is almost as low as in sleep. During sleep in the daytime the pulse frequency is only slightly decreased. Hearts with compensated valve lesions behave like normal hearts; with incompensated valve lesions there is less decrease, varying with the severity of the case. In very bad cases the rate may even be increased, so that the pulse during sleep has some significance for prognosis. Irregularities do not disappear in sleep. In purely nervous tachycardias, the rapid pulse rate slows up during sleep; in tachycardia of other origin, it does not. The pulse count during sleep thus aids in differential diagnosis in tachycardia.

Deutsche medizinische Wochenschrift, Berlin

October 9, XXXIX, No. 41, pp. 1969-2034

49 *Cosmetic Dermatology. (Aerztliche Kosmetik der Haut.) Kromayer.
50 Pathology of the Thyroid, the Parathyroids and Hypophysis Cerebri and Their Reciprocal Action. (Pathologie der Schilddrüse, der Beischilddrüsen, des Hirnanhangs und deren Wechselwirkung.) F. Kraus. Commenced in No. 40.
51 Behring's Diphtheria Vaccine. IV. Kleinschmidt and Viereck.
52 *Radium in Treatment of Internal Diseases. Fritz Kraus.
53 Improved Technic for Blood-Smears and Blood-Count. (Neue Differential-Zähltafel für Leukozyten.) V. Schilling.
54 *Albumin in Sputum. (Eiweissgehalt im Sputum Tuberkulöser.) E. Gelderblom.
55 Curved Spine Attitude to Relieve Sciatica. (Ischias kyphotica.) J. Hnatek.
56 Perforation of Aneurysm in Aorta into Superior Vena Cava; Eighteenth Case on Record. A. Klein.

49. **Cosmetic Dermatology.**—Kromayer reiterates the importance of directing treatment of acne to both the general and the local disturbances responsible for the trouble, and treating further the separate pustules and comedones. The main point, he thinks, is to keep the bowels open, and besides physicotherapeutic measures and dieting, he commends sulphur as the best means for the purpose in these cases. He usually orders equal parts of precipitated sulphur and sugar of milk and tells the patient to swallow several times a day as much as he can take up on the tip of his knife. His long experience has convinced him that the sulphur, besides stimulating peristalsis, checks putrefaction in the bowels and thus cuts off the auto-intoxication maintaining the irritation in the sebaceous glands. He also regards sulphur as the most effective local measure; he has the pustules painted at night with a mixture of 10 parts sulphur; 25 parts alcohol and 5 parts glycerin. He gives illustrations of his sets of comedo extractors and pustule augers. The tiny auger is of great advantage for both preventing, aborting and curing the nodules and pustules.

A course of treatment for moderately severe acne should include, he recapitulates, two or three weeks of general measures, sulphur applied locally and taken internally to regulate the bowels, and dieting, avoiding meat, eggs, cheese and sugar. He warns that the tendency to constipation is frequently not suspected by the patient. Then he gives a ten or fourteen day course of Roentgen-ray exposures, one-third or one-fourth erythem doses applied at six or eight sittings, to a total of one and a half erythem doses. Four or five weeks after the close of this course he applies what he calls peeling radiotherapy, applying the mercury quartz lamp for twenty or twenty-five minutes. Under the inflammation thus induced the skin peels off, the follicle plugs protruding from its inner surface. The skin must be carefully protected for eight or ten days and then carefully gone over with the comedo extractor and auger, treating with sulphur any red spots left. Three or four weeks of this complete the treatment. He treats milium with the auger and comedo extractor, but says that nothing seems to do permanent good in lichen pilaris except the Roentgen rays to a total dosage of 2 or 2.5 erythem doses, fractioned in six or eight sittings.

52. **Radium in Treatment of Internal Diseases.**—Kraus reports the results in forty-one cases of gout, sciatica, neuralgia, angina pectoris, joint troubles, tabes, etc., in which radium exposures were given a thorough trial. Eighteen of the patients were essentially improved, thirteen improved, and only seven failed to show any influence for the better. The best results were obtained in the ten cases of sciatica; next to this in turn in subacute and chronic articular rheumatism, gout, intermittent claudication and some of the consequences of cerebral hemorrhage. The combination of radium and deep Roentgen-ray exposures proved very effectual in some cases.

54. **Albumin in the Sputum in Tuberculosis.**—Gelderblom states that in his experience with seventy-five patients the presence of albumin in the sputum was always coincident with a fresh process in the lung. The rise and fall of the albumin content may be an index of the course of the process, and thus testing for albumin may throw light on the prognosis. The appearance of serumalbumin in the sputum early in pulmonary tuberculosis sustains Aufrecht's theory as to the blood-borne origin of such lesions in the lungs. In a typical case described the proportion of albumin increased from 0.05 per cent. to 0.175 in five weeks and the next day after the last examination there was a profuse hemorrhage from the lungs. A few days later the proportion was found 0.025 per cent. He thinks that this finding suggests that the albuminimeter might warn of an impending tendency to hemoptysis.

Medizinische Klinik, Berlin

October 5, IX, No. 40, pp. 1617-1662

57 *Multiple Sclerosis and Spastic Spinal Paralysis. H. Eichhorst.
58 Heart Disease and Metabolism. (Herzkrankheiten. III.) M. Herz.
59 Fatal Arsenic Poisoning from Chronic Self-Drugging. (Chronische Selbstvergiftung oder Giftmord?) L. Lewin.
60 Syphilis and Life Insurance. (Zur Prognose der Syphilis.) Reckzeh.
61 *Dietetic Strengthening of the Muscles in Myasthenia. P. M. Besse.
62 School Scoliosis. G. Müller.
63 Sanatoriums for Children. (Ueber Kinderheilstätten und Seehospize im Kampfe gegen die Tuberkulose.) E. Vollmer.
64 Rhythm in Vital Phenomena. (Der Rhythmus des Lebens.) G. Liebe.

57. **Multiple Sclerosis and Spastic Spinal Paralysis.**—Eichhorst reports the case of a man of 26, healthy until the last two months, during which he developed symptoms indicating primary spastic spinal paralysis in a pronounced form. His mother had been affected in the same way for over twelve years but necropsy revealed multiple sclerosis of the brain and

spinal cord. The young man probably has the same affection although in both the symptoms have been exclusively those of primary spastic spinal paralysis. Eichhorst has previously published a case of multiple sclerosis in a woman and likewise in her son; he thinks this is probably the only case on record in which the same medical man had both mother and child in his charge for multiple cerebrospinal sclerosis and was able to make the post-mortem examination in both. In three other cases of supposed primary spastic spinal paralysis in men microscopic examination of sections of the spinal cord revealed in fact merely the anticipated primary affection of the lateral pyramidal tracts.

61. **Diet and Exercise in Treatment of Weakness of the Muscles.**—Besse refers only to the forms of myasthenia, congenital or acquired, in which the condition has become aggravated by toxic influences either from the results of worry, hurry, unhygienic modes of eating, whims and prejudices in regard to food, abuse of alcohol or tobacco or intestinal auto-intoxication. Persons with this muscular weakness are generally given extra nourishing food which with an unhygienic mode of life only adds to the general auto-intoxication. He gives detailed directions for diet and exercise to influence the condition after the patients have learned to understand their weakness and its causes, and have been trained in rational hygiene and placid living.

Mitteilungen aus den Grenzgebieten der Med. und Chir., Jena

XXVI, No. 5, pp. 695-859. Last indexed Nov. 1, p. 1670

65 *Parapneumonic Empyemas. D. Gerhardt.
66 *Spontaneous Rupture of the Aorta. A. D. Woloschin.
67 *Functional Importance of the Gall-Bladder. (Experimentelle und anatomische Untersuchungen nach Cholecystektomie.) F. Rost.
68 *Tuberculous Gastric Ulcer. J. R. Gossmann.
69 Epigastric Pain with Appendicitis. (Ueber die hyperazide Gastropathie appendicitischen Ursprungs.) S. Solleri.
70 *Spinal-Cord Tumors. (Zur chirurgischen Therapie des intramedullären Rückenmarkstumor.) H. Oppenheim and M. Borchardt.
71 *Autoreinfection of Typhoid Bacilli Host. (Zur Auto-Reinfection des Typhusbacillenvirtes.) F. Kaspar.
72 *The So-Called Pleura Reflex. O. H. Petersen.
73 *Diagnosis of Mediastinal Disease. F. Siebert.

65. **Empyema in Course of Pneumonia.**—Gerhardt reports four cases of suppuration in the pleura early in the febrile stage of pneumonia, and yet the course of the disease did not seem to be aggravated by the empyema. The pneumonia ran the usual course. No micro-organisms could be found in the scanty pus. In a fifth case the empyema was much more extensive and avirulent pneumococci were found in the pus; convalescence was somewhat retarded in this case. This parapneumonic empyema tends to spontaneous absorption and probably has frequently escaped detection.

66. **Spontaneous Rupture of the Aorta.**—In the case reported a robust young man had been engaged for six years in exceptionally hard physical work and his heart had become hypertrophied from the strain; the abnormally extensive excursions of the diaphragm also cooperated in straining the aorta. The results were a sudden rupture of the aorta in the supposedly unusually sound and strong young man. In the second case necropsy showed rupture of the aorta in a middle-aged man at a point where there evidently had been an old and long healed lesion, probably a dissecting aneurysm of syphilitic origin.

67. **The Functional Importance of the Gall-Bladder.**—Rost's sixty-page article reports comprehensive experimental and anatomic research undertaken to determine to what extent the gall-bladder is necessary to the organism and what effects follow its removal. The absence of the gall-bladder does not seem to affect the metabolism directly but the conditions in regard to the passage of bile into the intestines vary according as the muscle at the papilla acts like a sphincter or not. When there is a long stretch of muscle at the papilla which is able to hold back the bile, it accumulates above and stretches the duct, making it a receptacle for the bile, like a new gall-bladder. This does not occur when the papilla muscle is incapable of sphincter action. The practical conclusion of the research is that it is wise to leave a portion of the cystic duct when removing the gall-bladder so that it may serve for a new gall-bladder in case the papilla should prove to be "continent."

68. **Tuberculous Gastric Ulcer.**—Gossmann states that he found indications of tuberculosis in 40 per cent. of 5,900 necropsies 1900-1912 at the Munich public hospital. There were signs of tuberculous ulceration in the stomach in only 0.31 per cent. of all the cadavers (0.76 per cent. of the tuberculous cases). A tuberculous ulceration was found in the duodenum near the pylorus in five other cases, and in another group of five there were ulcers both in the stomach and duodenum. There was chronic pulmonary tuberculosis in all the cases, and the stomach or duodenum lesions had not been diagnosed during life. The findings confirm the possibility of infection by way of the blood, the lymph, the mouth or by spreading from adjoining lesions.

70. **Spinal-Cord Tumors.**—Two cases are described in detail in the effort to throw light on the surgical possibilities with tumors originating in the spinal cord or invading it. The tumors in these cases were easily shelled out, but the spinal cord had already been injured to such an extent that most of the symptoms persisted unmodified. In one case, however, the patient was relieved from his agonizing pains by the operation, and had no further pain during the nine months he survived. In the other patient, a man of 70, the tumor was found hidden in the spinal cord; the first symptom over two years before had been a feeling of heat in the left foot, the whole leg finally feeling hot, while the left leg grew weak and finally paralyzed and girdle sensations gradually developed in the upper part of the abdomen and there was difficulty in urinating and finally incontinence of urine and obstinate constipation. The third dorsal vertebra was tender and the region was dull on percussion, but the tumor was found at the second dorsal segment, entirely within the spinal cord. The operation was followed by total flaccid paralysis with anesthesia, but the knee phenomena soon returned. The patient succumbed the fifth day to pneumonia; he had signs of emphysema and bronchitis prior to the operation.

71. **Autoreinfection with Typhoid.**—In Kaspar's case a boy of 10 was left with mild transient periostitis of the left tibia after typhoid. Five years later a similar process developed in the right thigh but healed in a few weeks. Two years later he applied for treatment of a similar process in the right tibia which had come on with a chill and fever. The boy, now 17, was given a test oil breakfast. This causes bile to enter the stomach, and from the bile thus obtained Kaspar was able to cultivate typhoid bacilli, as also from the blood and from the pus in the tibia lesion. The boy had not been exposed to typhoid recently and the case probably must be explained as an autoreinfection, running a very mild course without abdominal symptoms.

72. **The Alleged Pleura Reflex.**—Petersen reports the case of a young woman with symptoms of an abscess in the lung requiring operative treatment. A small amount of pus was aspirated from the pleura but the patient collapsed when the thermocautery was applied under local anesthesia. She revived readily but a pneumothorax was left and the fever kept persistently high. A week later several punctures were made but no pus could be found. The sputum showed traces of blood and the patient collapsed anew with all the signs that have been described as the pleura reflex, and she could not be resuscitated. The necropsy findings indicated that the trouble was due to injury by the puncture needle of some blood-vessel. This had permitted the entrance of air during inspiration and fatal air embolism was the result. Petersen is convinced that the so-called pleura reflex is probably in many cases in fact an air embolism.

73. **Disease in the Mediastinum.**—Siebert found on vertical orthodiagraphy that the diameter of the aorta averaged 2.6 cm. in twenty-six normal adults of all ages between 46 and 55, ranging from 2 to 3 cm. In seven others with signs of dilatation of the heart or vessel trouble the range was from 3.4 to 4.2 cm. The early diagnosis of beginning sclerosis or syphilitic dilatation of the aorta is thus possible by ascertain-

ing the diameter of the vessel. He also reports a case of nearly complete obliteration of the superior vena cava with development of collateral circulation between the superior and inferior vena cava, similar to a case published by Osler some years ago. Both patients had the characteristic sensation of constriction in the chest.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

October, XXXVIII, No. 4, pp. 383-502

74 No Proof of Injury to Liver Function durinig Pregnancy. M. Neu and F. Keller.
75 *Abderhalden's Biologic Test of Pregnancy. G. Wolff.
76 Indications and Contra-Indications for the Use of Hypophysis Preparations in Obstetric Cases. E. Puppel.
78 Abnormal Spontaneous Abortion causing Cervico-Vaginal Fistula. Bubilitschenko.
79 *Complete Rupture of the Uterus. O. Nebesky.
80 Lithopedion Carried in the Mesentery for Twenty Years. L. Biener.

75. **Serodiagnosis of Pregnancy.**—Wolff describes his experiments with Abderhalden's method, resulting in failure at first until he learned from Abderhalden himself the exact technic for preparing the placenta. He concludes that the method shows pregnancy in its very beginning if the placenta is washed until it is absolutely free of blood and does not react with ninhydrin. Abderhalden's directions must be minutely followed. The serum to be used must not be allowed to stand more than four or five hours. The reaction is of special value for differential diagnosis between pregnancy and tumors. The test is not suited for general practice but has great value in hospitals where it can be performed often enough to ensure exact technic.

79. **Treatment of Complete Rupture of Uterus.**—Nebesky gives statistics and describes four cases to show the necessity for immediate operation for rupture of the uterus and the inadequacy of conservative treatment.

Münchener medizinische Wochenschrift

October 7, LX, No. 40, pp. 2209-2264

81 *Steeple Skull. (Der angeborene Turmschädel.) H. Küttner.
82 Disappointing Experiences with Thorium X in Leukemia. G. Rosenow.
83 *Electrotherapy in Blood Diseases. O. Veraguth and R. Seyderhelm. To be continued.
84 Treatment of Tuberculosis by the Deycke-Much Partial Antigens. G. Deycke and E. Altstaedt.
85 Rudimentary Eventration of the Diaphragm. R. Kienböck.
86 Comparison of Action of Uzara and Opium. O. Hirz.
87 *Tonsillectomy. (Die Technik der extrakapsulären Totalexstirpation der Tonsille.) G. Trautmann.
88 Roentgenotherapy of Uterine Myoma. A. Sippel.
89 *The Specificity of the Protective Ferments. (Tierexperimentelle Untersuchungen über die Organspezifität der proteolytischen Abwehrfermente—Abderhalden.) A. Fuchs.
90 *Serotherapy in Tetanus. A. Weber.
91 *Examination of the Urine. K. Rühl.
92 *Infusion of Blood in Treatment of Severe Anemia. Windesheim.
93 Radium in Therapeutics. F. Herrmann.

81. **Congenital Steeple Skull.**—Küttner explains this deformity as the result of the growing together of the bones of the skull before the normal time for ossification. In two cases he has encountered this occurred before the child was born, and the deformity has persisted unmodified. The children are now over a year old. The girl has several other deformities, cleft palate, etc. Meltzer found the steeple skull at birth only in one of twenty blind children with steeple skull. Twelve of the other children had an unusually tall skull at birth, but the actual deformity did not develop until the children were 1 to 6 years old; seven other children were normal at birth, and the skull assumed the steeple shape between the ages of 3 months and 3 years. Küttner has found in the litcrature only one case resembling the first he reports, with extreme exophthalmos from the shallowness of the orbits. The danger to the eyes is generally from atrophy of the optic nerve from compression. Decompressive trephining is indicated to prevent choked disk and atrophy; puncture, if there is an excess of fluid in the skull. Schloffer has proposed to enlarge the bony canal for the optic nerve in case of steeple skull, and he has done this in two clinical cases. One operation was done quite recently; the other patient seems to be somewhat improved. Of course, for children, this serious operation would be considered only after failure of a decompressive operation.

83. **Electric Influencing of the Leukocyte Picture.**—This is only the first instalment of Veragüth's article, but it states that the application of electricity in the cases reported was able to restore the abnormal leukocyte picture to approximately normal in a remarkably short time. The red corpuscles and a normal leukocyte blood-picture do not seem to be influenced, but an abnormal leukocyte picture changes at once for the better, as he shows by the blood-count in a case of secondary anemia, in three of lymphocytosis with exophthalmic goiter, six of lymphocytosis of other origins, two of myeloid leukemia, one of Werlhof's disease and two healthy controls. The electric current was of low tension and low intensity, and the sittings ranged from five to thirty minutes in length. In four cases of lymphocytosis the number of leukocytes dropped from 13,600 to 6,200; from 8,200 to 5,200; from 11,600 to 8,800 and from 12,600 to 11,200 under a fifteen-minute exposure, the reduction thus ranging from 1,400 to 7,400, while the proportion of lymphocytes was reduced by 4 up to 18 per cent. In one of the three exophthalmic goiter cases the leukocytes numbered 13,600, but dropped after a thirty-minute exposure to 5,900; two days later the leukocytes numbered 6,600, and dropped to 5,100 under a twenty-five minute exposure. The lymphocytes dropped during the two exposures from 43 to 31.5 per cent. and from 49.5 to 41 per cent. No further details as to technic are given in this instalment of the article.

87. **Technic for Tonsillectomy.**—Trautmann insists that the tonsil capsule should be removed with it, that is, the sheet of connective-tissue that encloses the tonsil on the outside. The portion of the tonsil toward the mouth extends beyond the capsule, which only covers the side. The front of the tonsil is covered with what he calls the prepuce; it shows up when the root of the tongue is depressed with a spatula. The anterior pillar of the soft palate starts from the tongue like a flag-staff and the prepuce spreads from it above like a flag on its standard. He gives several illustrations to show conditions and the advantages of obtaining access to the tonsil by a curving incision through this prepuce; this exposes the tonsil and also its capsule and permits the whole to be easily shelled out with the finger or a blunt instrument. He warns expressly against using a cutting instrument. The tonsil is taken out through the incision, not directly into the mouth; by this means all danger is avoided of injuring the veins. The vessels severed in the operation retract at once and as they slip back into the stout muscles forming the tonsil recess they become compressed so that there is no danger of hemorrhage. If there should be hemorrhage the tonsil cavity being so amply exposed by this technic renders it a comparatively easy matter to arrest the bleeding.

89. **The Specificity of the Abderhalden Protective Ferments.**—Fuchs reports experiments which confirmed the absolutely specific nature for the organ involved of the ferments demonstrated by the Abderhalden technic. The serum of rabbits treated with human kidney tissue was able to digest kidney tissue in eighty-eight hours while it did not digest liver tissue, and vice versa. He has also confirmed in further research the findings of others in regard to the specific digestion of testicle tissue by the serum of men with dementia praecox, and of ovary tissue in women, and never the reverse. Also the total absence of any digesting property for the ovaries or testicles in the serum of patients with depressive mania, and, further, the positive reaction in cancer cases. The reaction proved specific for the organ whether derived from human beings, calves or laboratory animals, and it was equally pronounced irrespective of the species.

90. **Serotherapy of Tetanus.**—Weber relates two cases to show the importance of giving antitetanus serum as early as possible, and keeping it up until the spasms have become much mitigated. Children seem to bear a large total dosage without harm. The first patient was a boy of 13, and he recovered under fourteen injections of the antitetanus serum, a total of 1,400 serum units.

91. **Examination of the Urine.**—Rühl uses the two-glass method and states that it frequently happens that the urine may seem perfectly limpid at first, but if it is set aside for a few minutes it becomes slightly turbid. Consequently he advises waiting for fifteen minutes up to an hour before passing final judgment on the urine.

92. **Treatment of Pernicious Anemia.**—Windesheim states that prompt improvement followed intragluteal injection of 10 c.c. of still warm human blood at intervals of ten or fifteen days. The patient was a woman of 52, with signs of pernicious anemia, entire loss of appetite and repeated vomiting. Seven injections of the blood were made in the course of four months, and the blood regained nearly its normal composition and the patient now feels well and comparatively strong.

Therapeutische Monatshefte, Berlin

October, XXVII, No. 10, pp. 685-756

94 *Lime Salts in Therapeutics. (Zur Pharmakotherapie mit anorganischen Kalksalzen.) R. von den Velden.
95 Hormonal. F. A. Hesse.
96 Congenital Syphilis. E. Müller.
97 Massage and Graduated Exercises in Kidney Disease. (Mechanotherapie bei Nierenerkrankungen.) F. Kirchberg.
98 *Tuberculin Treatment for Children. Eckert.
99 *Occult Blood in the Stools during Lenhartz Gastric Ulcer Diet. G. Queisser.
100 *Warning against Catgut Alone for Suturing Abdominal Fascia. O. Müller.
101 Legal Decisions on Nostrums. (Juristisches über den Heilmittelschwindel.) W. Heubner.
102 The Work of the Council on Pharmacy and Chemistry of the A. M. A. W. Heubner.

94. **Lime in Therapeutics.**—Von den Velden limits his discussion of this subject here to the action of calcium salts on the endothelium of the vessels and on the coagulation of the blood. He gave patients 1 gm. tablets of calcium lactate up to a total dosage of 4 or 6 gm. a day. To a few others he gave calcium chlorid 0.5 gm. three times a day. In a few cases he gave the lime by intravenous injections of a 5 per cent. solution of calcium chlorid. His experience has demonstrated that the calcium enhances the coagulating power of the blood and also renders the morbidly permeable vessel walls less permeable. The latter effect is strikingly evident in hemorrhagic affections, such as scorbutus; the calcium renders the vessel walls less porous. This hemostatic effect therefore can be anticipated only in case of bleeding by diapedesis. It is unfortunate that the absorption of the calcium salts depends on a variety of factors, especially on good gastric secretion and on the absence of fermentation acids in the intestine. He detected the abnormal permeability of the vessels responsible for the rebellious scorbutus hemorrhages in one case by applying a cupping glass for five minutes. The vacuum glass drew blood just the same after two weeks of the ordinary measures. Then he gave the man 3 gm. a day of calcium lactate for five days after which the cupping glass no longer drew blood, and complete recovery followed in three weeks of the same treatment. He also found calcium lactate useful in two cases of iodin poisoning from a course of potassium iodid. A further useful application of the calcium lactate is in curing the cutaneous manifestations of anaphylaxis. In pleurisy with effusion the fact that the calcium renders the vessel walls less pervious has an unfavorable side, as this checks absorption. The calcium is indicated, therefore, only when the effusion constantly recurs after puncture. When the walls of the pleura are severely modified by chronic inflammation, the calcium will naturally have no effect. He found that animals developed cachexia when given calcium salts over a long period. In fifteen cases of hemorrhagic nephritis the results of the calcium medication were conflicting. No pronounced favorable results were obtained in any case and the condition was aggravated in some.

98. **Tuberculin Treatment of Tuberculosis in Children.**—Eckert warns that the tuberculin may arouse slumbering tubercle bacilli and drive them out of their latent focus into the blood stream. This would be disastrous as children have less resisting power than adults in respect to tubercle bacilli. The only technic for tuberculin treatment for children is to keep the doses so small that no reaction is elicited in the focus. The aim is not to cure the tuberculosis but to enhance the resisting powers so that the child single-handed can conquer the disease.

99. **Occult Blood in Stools on Gastric-Ulcer Diet.**—Queisser found blood with the Weber test in 20 per cent. of forty persons free from gastro-intestinal ulceration but fed with the Lenhartz gastric-ulcer diet. The chopped meat in this diet was evidently responsible for the positive findings.

100. **Warning Against Catgut for Suturing Abdominal Fascia.**—Müller used catgut to suture the abdominal wall after removing an ovarian cyst in a woman who proved to be coming down with typhoid. The wound healed by primary intention, but the ninth day it opened its entire length with eventration of most of the intestine. The catgut had evidently been absorbed too soon; the fever may have hastened the absorption. The woman, a Chinese, recovered with no signs of peritonitis.

Therapie der Gegenwart, Berlin

October, LIV, No. 10, pp. 433-480

103 *Gastric Achylia. A. Albu.
104 *Treatment of Obesity. A. Kimmerle.
105 Experiences with Thorium X. J. v. Benczur.
106 Inoperable Rectum and Esophagus Cancers Treated with Mesothorium. S. Meidner.
107 Present Status of Mercury in Therapeutics. (Quecksilbertherapie.) M. Joseph.

103. **Gastric Achylia.**—Albu has encountered seven families in which a parent and child presented evidence of an inherited tendency to gastric achylia. He calls this type the aplastic form as it is evidently the result of defective development. It is one of the most characteristic signs of the neuropathic constitution. He warns that this aplastic gastric achylia should be suspected when older children exhibit chronic disturbances in digestion and nutrition. He urges pediatrists to make a special physiologic analysis of such cases with the more modern means of investigation, testing separately the functioning of the stomach, pancreas and intestine. This form of achylia may be regarded as on the same clinical plane as orthostatic albuminuria. The achylia may manifest itself by acute disturbances which in turn may yield to normal conditions. He has had five cases of this kind. One patient, a nervous young merchant, has had three such attacks in the last two years; periods of hyperchlorhydria have also been observed during this period. The trouble is probably a transient exhaustion of a functionally weak gastric mucosa. Such patients do particularly well on a purely vegetable diet, the food all served in the most finely divided form in purées. By dropping meat from the diet for four or six weeks, the bacterial flora in the intestines is transformed. Yoghurt may prove useful; sweet milk is generally badly borne. Cutting out the meat from the diet is particularly beneficial when the pancreas secretion is also below par; fat should also be restricted in this case. Veal and chicken meat in the form of a jelly are appetizing additions to the diet. Hydrochloric acid and pancreas preparations may be needed symptomatically and may have to be kept up for years, suspending them for a time every month.

104. **Treatment of Obesity.**—Kimmerle reports four cases in which a modified Karell course of dieting answered the purpose most admirably. One patient lost 13.6 kilograms in six weeks under it, and by keeping up the restrictions for the year, had her weight further reduced by 42.2 kgm., nearly 109 pounds. The first five days only 200 c.c. of milk was allowed, the patient keeping in bed. Then small amounts of meat and bread were permitted and after six weeks the diet was regulated to keep below 10.5 gm. nitrogen and later below 12 gm. nitrogen. She did not suffer materially from thirst or hunger, and none of the patients showed any injury from this low nitrogen intake.

Wiener klinische Wochenschrift, Vienna

October 9, XXVI, No. 41, pp. 1645-1688

108 *Carcinoma and Radium. G. Riehl.
109 *Radium Treatment of Uterine Cancer. E. Wertheim.
110 *Radium in Gynecology. H. Peham.
111 *Radium in Treatment of Cancer. E. Ranzi, H. Schüller and R. Sparmann.
112 *Radium Treatment in Surgery and Dermatology. F. Dautwitz.
113 Experimental Cancer Research. F. Keysser.

108 to 112. **Radium in Treatment of Malignant Tumors.**—Radium was the main topic of interest at the recent German "Naturforscher Congress," which was held at Vienna this year. The clinicians connected with the university of Vienna have more radium at their disposal than any one else, the faculty now having 1.5 gm. of the radium element. Riehl reported the results attained with radium treatment of cancer at the public hospital, Wertheim the results in treatment of uterine cancer, Peham the results in the gynecology clinic, others presenting a report on the experiences with radium in fifty-three cancer cases at von Eiselsberg's surgical clinic, while Dautwitz reported from St. Joachimsthal his results with twenty-one radium capsules as applied in hundreds of cases of various surgical and dermatologic affections. This testimony shows that the wave of overenthusiasm for radium treatment of malignant disease is already subsiding, and a more rational judgment is taking its place, and the possible dangers in its use are becoming recognized.

Riehl emphasized the importance of uniform terms and standards for comparison of the strength and effects of the radium. He ascribes the action of radium on cancer tissue to the fact that the cancer cells, being degenerated, succumb more readily to the rays than sound tissue. In time and with sufficient dosage the sound tissue is influenced also in the same way. He never noticed anything that indicated an indirect action from the radium on adjoining or remote tissues, lymph-nodes, etc. His experimental research demonstrated that the exposures affected the blood; small doses induced leukocytosis, while large doses reduced the number of leukocytes until they disappeared entirely from the blood. In small animals the spleen also disappeared and other injuries were noted, demonstrating the possibility of serious damage in the clinic from prolonged and intense exposure to radium. Some of his patients exhibited vertigo, vomiting, agitation, bad pulse and collapse after intensive radium exposures, suggesting that certain organs or the entire organism had suffered under the influence of the rays. His experience warns further that inadequate doses and too brief exposures have an actual stimulating action on the malignant disease.

Wertheim's experience has convinced him that in the cases which responded favorably to the radium treatment, ordinary measures would have answered the same purpose equally well. Some of his patients evidently suffered from the influence of the radium, becoming emaciated and weak, with weakness of the heart, headaches, sleeplessness, disturbance in bladder and intestine functioning and local pains. It is his impression that preceding radium exposures render more difficult the removal of the growth later.

The reports from the Eiselsberg clinic state that removal of the cancer should be the rule, but that radium or the Roentgen rays are indispensable after the operation to act on any cancer cells that have escaped the knife.

Zentralblatt für Chirurgie, Leipsic

October 11, XL, No. 41, pp. 1585-1624

114 Resection of Cardial Segment of Esophagus for Cancer. E. Bircher.
115 Partial Pneumothorax Always Left after Closure of Wound in the Thorax under Differential Pressure. H. Burckhardt and L. Dreyer.

Zentralblatt für Gynäkologie, Leipsic

October 11, XXXVII, No. 41, pp. 1501-1548

116 Examination of Vagina in Little Girls. M. Stols.
117 Hypophysis Extract with Placenta Praevia. E. Herz.

Zentralblatt für innere Medizin, Leipsic

October 11, XXXIV, No. 41, pp. 1025-1048

118 Slight Diagnostic Import of Albumin in the Sputum. (Eiweiss im Sputum Lungenkranker.) A. Schneider.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 7, XXXIV, No. 120, pp. 1255-1262

119 *Tuberculous Gastric Tumor. (Tubercolosi dello stomaco a forma neoplastica.) O. Ortali.

119. **Tuberculous Tumor in the Stomach.**—Ortali's patient was a farmer of 52 who had had stomach trouble for six months, eructations, pain an hour or two after eating, and vomiting every two or three days soon after eating. No blood had been noticed in the stools or vomit. There was slight evening temperature, no cough or night sweats, but diarrhea and constipation alternated and the man grew very thin. Lactic acid but no free hydrochloric acid was found in the stomach content and the stomach was opened on suspicion of cancer. The pylorus region was found the seat of a hard tumor studded with granulations. Gastro-enterostomy relieved the patient of his disturbances, but he succumbed two months later to peritonitis. Ortali knows of only twenty-four cases on record of this tumor form of tuberculosis of the stomach.

Policlinico, Rome

October 5, XX, No. 40, pp. 1433-1468

120 Suture of Kidney after Nephrotomy. E. Tarozzi.
121 Intravenous Injection of Iodoform in Pulmonary Tuberculosis and Pneumonia. A. Cerioli.

Riforma Medica, Naples

October 4, XXIX, No. 40, pp. 1093-1120

122 Transverse Myelitis Secondary to Cancerous Degeneration of Persisting Thymus. A. Roccavilla. Commenced in No. 38.

Rivista Ospedaliera, Rome

September 30, III, No. 18, pp. 789-836

123 *Chronic Appendicitis with No Acute Phase; G. Bolognesi
124 Primary Sarcoma in the Jejunum-Ileum. A. Di Bartolo.

123. **Chronic Appendicitis Without Acute Phase.**—Bolognesi insists that appendicitis may develop with merely slight disturbances, nothing more than vague gastro-intestinal pains, dyspepsia and constipation. In time, however, the chronic inflammation entails changes in the appendix similar in every respect to those of ordinary appendicitis with one or several acute phases. He found this to be the case in four of twenty cases of chronic appendicitis reported; nothing had been known of an acute attack in any instance.

Pediatria, St. Petersburg

IV, No. 1, pp. 1-89

125 *Hemorrhage from the Uterus in New-Born Infants. (Metrorhagia neonatorum.) S. K. Gogitidze. Concluded in No. 2.
126 Serotherapy in Scarlet Fever. (104 slutchaia primienenia Moser'ovskoe sivorotki pri skarlatinie.) Generopitomzeff.

No. 2, pp. 90-172

127 *Pneumonia in Children. D. A. Sokoloff. Concluded in No. 3.
128 *Tuberculosis of Pulmonary Lymph-Nodes and Spine Mistaken for Croup. (Oshibotchni diagnos croupa u dietei.) M. A. Michaelovitch. Concluded in No. 3.
129 *Specific Skin Reaction to Mustard in Children with the Exudative Diathesis. E. I. Ruchmilevitch.

No. 3, pp. 173-256

130 *Diphtheria Bacilli in Chronic Carriers. N. I. Lunin.
131 The Elements of the Blood. (III-i i IV-i elementi krovi.) P. P. Eminet.

No. 4, pp. 257-335

132 *The Thyroid in Scarlet Fever. (Izmienenia shtchitovidnoi zhelezi pri skarlatinie u dietei.) K. Z. Gregor.
133 *Leiner's Desquamating Erythrodermia. E. D. Zvenigorodsky.
134 Means to Reduce Infant Mortality. V. Varshavsky.

125. **Hemorrhage from the Uterus in the Newborn.**—Gogitidze does not consider the hemorrhage in infants as a pathological occurrence because the uterus of the newborn undergoes a reaction followed by enlargement of this organ, hyperemia and hemorrhages. In some cases the physiological hyperemia is intense, ending in hemorrhage. This condition must be differentiated from precocious menstruation which is a periodical discharge of blood in very young children, accompanied by premature development of the sexual organs. The metrorrhagia does not occur periodically, usually lasts about forty-eight hours, and disappears without treatment. In his four cases there was no history of sepsis, ulcers, melena, endometritis, or any gastro-intestinal disorder. (The views of Gogitidze are criticized by Joukovsky in an article published later in *Pediatria*, p. 474.) Joukovsky regards the hemorrhage as a pathologic phenomenon, stating that it never occurs in healthy children, only in those suffering from gastro-intestinal disorders. He adds that it is not rare by any means; he has observed it in more than fifty cases.

127. **Acute Pneumonia in Children.**—As the views in regard to classification of pneumonia in children are not the same with different authors. Sokoloff gives a review of the liter-

ature on this question and his own views based on rich clinical and pathologic material. In the diagnosis of pneumonia, in each case, the lobe or lobule should be recorded, on which side, then the character of the exudation (catarrhal, fibrinous or both), finally the etiologic factor (diplococcus, streptococcus, staphylococcus, influenza, measles, pneumonia, etc.). When all the data are thus recorded a complete idea of the morbid process may be gained; the course and prognosis can then be outlined, etc. In other words, the whole character of the disease can be easily determined and understood if the above points are uniformly recorded.

128. **Tuberculosis of Pulmonary Lymph-Nodes and Spine Mistaken for Croup.**—Symptoms of stenosis of air passages may be caused by pressure of tuberculous bronchial lymph-nodes, and it is very important to differentiate stenosis of this kind due to outside pressure and not mistake it for croup. Michaelovitch discusses this question from various points of view, including the etiologic, bacteriologic, pathologic, anatomic, clinical, the course, etc. He comes to the conclusion that frequently, especially when the case is urgent, the differential diagnosis can be partly guessed from the general appearance of the patient, his history, percussion, auscultation, etc., but mainly from the fact that in stenosis from tuberculosis the dyspnea or stenotic respiration occurs during both inspiration and expiration, while in croup it is inspiratory alone. The stridor may increase from crying, coughing, etc., and closely resemble that in laryngeal diphtheria. As it is impossible in an urgent case to exclude diphtheria, he recommends as a prophylactic measure intubation and injection of antitoxin. Later, exact differentiation can be made through proper clinical, bacteriologic and especially roentgen-ray examinations.

129. **Specific Skin Reaction to Mustard in Children with the Exudative Diathesis.**—Rachmilevitch has been studying in children the so-called exudative diathesis with which there are lesions in the skin, mucous membranes or lymphatic tissues. Here belong seborrhea, intertrigo, recurring bronchitis, asthma, lymphatic states (enlarged tonsils, enlarged spleen), etc. When the symptoms are not pronounced, it is hard or almost impossible to diagnose the existing tendency, the exudative diathesis. In these dubious cases Rachmilevitch found a new method of diagnosis. The skin of the arm, for instance, is scarified, and a paste containing mustard is rubbed into the scarifications, and bandaged. While healthy children will show probably more or less redness on the places of irritation, children with the morbid diathesis will show within half an hour after the irritation a white blister surrounded by a hyperemic area which persists for fourteen or eighteen days. Serum in the form of small drops will appear, not coagulating before two hours. All these phenomena, the formation of the vesicle, the serous exudation, the retarded coagulation, constitute a positive reaction. This reaction occurs not only in children with clearly developed symptoms of the exudative diathesis, but also in those in whom the symptoms are hardly manifest, or in whom only one sign is present. Children who are perfectly healthy, or who do not show any signs of the exudative diathesis, give a negative reaction. From study of 100 cases Rachmilevitch comes to the conclusion that the described test is a very reliable means for determining occult types of the exudative diathesis. Czerny has confirmed the differential importance of this test, he states in conclusion.

130. **Chronic Diphtheria Bacilli Carriers.**—Lunin found that in 708 cases of diphtheria only 1.1 per cent. gave rise to "return cases." The patients were discharged after three bacteriologic examinations of the mucus from the throat and nose had given negative results. He also found that the bacilli that occur in healthy people or remain unusually long in those who have had an attack of diphtheria, are not virulent, and are thus harmless. They may accordingly be sent home or left among other patients; the only precaution he recommends is to gargle the throat and clean the teeth.

132. **The Thyroid in Scarlet Fever.**—Gregor studied twenty-one cases of scarlet fever in regard to changes caused by this disease in the thyroid gland. It was studied at various stages of the disease (second day to twenty-seventh day), and the findings were compared with those found in the thyroid gland during catarrhal pneumonia, chronic enterocolitis, measles, etc. Böhmer's hematoxylin and the Van Giesen stain were used. The findings showed that the thyroid is considerably involved in scarlet fever, especially the vessels and the parenchyma itself; the colloid substance decreases according to the duration of the disease. He frequently found numerous bacteria emboli, which speaks for bacterial thyroiditis in scarlet fever superposed on a toxic irritation. The thyroiditis may entail later actual thyroid disease, such as exophthalmic goiter. The clinical manifestations of the scarlatinal thyroiditis are not known, as it is hard to trace them in children.

133. **Case of Leiner's Desquamating Erythrodermia.**—Zvenigorodsky differentiates this affection from similar skin lesions in infants, defining it as a general dermatosis with diffuse reddening of epidermis and formation of scales and scabs. No symptoms of Czerny's exudative diathesis were apparent in the case reported. The peculiar feature of this disease is the presence of gastro-intestinal disorders with breast-feeding. Auto-intoxication is looked on as the cause, as in his case the mother had suppurative mastitis. As this healed the gastro-intestinal disturbance in the child, as well as his skin disease, disappeared.

Norsk Magazin for Lægevidenskaben, Christiania

October, LXXIV, No. 10, pp. 1305-1448

135 Invasion of Human Beings by Parasites of Animals. (Fund av en del dyreparasiter hos mennesker.) F. Harbitz.
136 Elimination of Formaldehyd in the Urine after Administration of Hexamethylenamin. A. Brinchmann.
137 *Osteomalacia; Two Cases. K. Brandt.
138 Induced Premature Delivery with Contracted Pelvis. N. Kahrs.
139 Another Case of Acute Dilatation of the Stomach. (Akut ventrikelektasi.) Bretteville-Jensen.
140 Ferric-Chlorid Urine Reaction and Impending Diabetic Coma. (Om den Gerhardt'ske jernkloridreaktion, og om hvilke holdepunkter man har til bedømmelse av faren for at der skal indtræde et coma diabeticum.) H. C. Geelmuyden.

137. **Osteomalacia.**—Brandt describes a case of severe osteomalacia in a ii-para of 32. Symptoms were first noticed two years after her first child was born; her limbs seemed weak and the condition became aggravated during her second pregnancy and later; by the sixth year she presented the extreme type of osteomalacia. The ovaries were then removed and slight improvement was at once evident, but the patient died in a few days; necropsy was not permitted. In a second case the osteomalacia developed during a first pregnancy and grew worse during a second and third pregnancy, letting up in the intervals. Supravaginal amputation of the uterus was done a month before term and the woman seemed to have quite recovered from the osteomalacia when she left the hospital seven weeks later. Brandt states that he knows of only five other cases of osteomalacia that have been published in Norway. He analyzes the total seven and remarks that ovariectomy must be regarded as the specific treatment for it.

Ugeskrift for Læger, Copenhagen

September 25, LXXV, No. 39, pp. 1599-1622

141 *End-Results of Treatment of Genital Prolapse. S. A. Gammeltoft.

141. **Genital Prolapse.**—Gammeltoft was able to learn the history to date of 132 of 150 patients who were given operative treatment for genital prolapse since 1900. Six of the total patients died in connection with the operation, and six have died since. The ultimate outcome to date is thus known in 127 cases; conditions are entirely satisfactory in eighty-one of the patients; seventeen patients have no subjective disturbances but the anatomic condition is not perfect, or else the anatomic condition is satisfactory but there are slight subjective symptoms. The prolapse recurred in twenty-four other cases. In three other cases conditions are excellent in every respect except that the cervix has become hypertrophied. In the two remaining cases the prolapse recurred after a severe fall or difficult forceps delivery. In regard to the operative technic, he says that scarcely any condition requires individualizing to such an extent; the combined vaginal and abdominal method is certainly great progress.